MINISTERUL EDUCAŢIEI ȘI CERCETĂRII

UNIVERSITATEA „OVIDIUS” DIN CONSTANŢA

FACULTATEA de MATEMATICĂ ȘI INFORMATICĂ

PLAN DE ÎNVĂŢĂMÂNT

(conţine **13** pagini)

Domeniul fundamental:	**Matematică și științe ale naturii**
Domeniul de licenţă:	**Informatică**
Ciclul de studii:	**I**
Programul de studii:	**Informatică în limba engleză**
Durata studiilor:	**3 ani**
Forma de învăţământ:	**cu frecvență (IF)**

Valabil începând cu ANUL UNIVERSITAR 2025-2026

1. The purpose of the study program

Bachelor's degree program in the field Computer Science aims the training of qualified specialists in the main fields of Information and Communications Technology, with abilities in the immediate application of the acquired knowledge to the demands of the labor market and in terms of continuous academic development by the Master and PhD programs.

The Computer Science program purpose is to create a sound knowledge base for the attendees, allowing the continuation and the development of the 2nd and the 3rd cycle studies – the Master and the PhD programs; the main goal is to prepare specialists and scientists in the field of Information and Communications Technology.

This study program is organized according to the Bologna educational system and it is adapted to the modern changes in the European degree programs in the field of Computer Science. The relationship between student and teacher is one of partnership, where everyone takes responsibility to achieve the learning outcomes. The learning results are explained and discussed with the students in terms of their relevance for academic development.

2. Occupations practiced on the labor market according to the National Register of Qualifications in Higher Education (RNCIS) and/or the European Classification of Occupations (ESCO)

Analyst - 251201; System Engineer in Computer Science - 251203; Programmer – 251204.

The competences of the core group *Software Designers* from the major group 2 COR/ISCO-08/ESCO *Specialists in various fields of activity*:
Professional competences
C1 Analysis of functional and non-functional requirements of software applications
C2 Design and development of software applications
C3 Design of information systems architecture
C4 Management of software development projects
C5 Ensuring data security and information protection
C6 Using cloud technologies for application development and migration

Transversal competences
CT1 Management of personal professional development
CT2 Professional interaction in research and collaborative environments
CT3 Application of the principles of ethics and scientific integrity in professional activities

3. ADMISSION

Admission to undergraduate university studies is based on the admission methodology approved by the University Senate.

4. CERTIFICATION OF STUDIES

Certification of studies is done with a Bachelor's degree in Computer Science (Level 6 – CNC). The diploma is accompanied by a diploma supplement containing the results of assessments throughout the schooling, according to its own regulations and methodology.

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Programul de studii: INFORMATICĂ IN LIMBA ENGLEZĂ
Forma de învățământ: cu frecvență (IF)

Durata studiilor: 3 ani
Valabil începând cu ciclul de studii:2025-2028

CURRICULUM
1st Year

No..	Discipline code	*C1	**C2	Disciplines	1st Semester (14 weeks)							2nd Semester (14 weeks)							No. of hours per discipline		
					SI	C	S	L	P	F.V.	CR	SI	C	S	L	P	F.V	CR	Total	Course	Applications
				Mandatory Disciplines																	
1.	CS.1.1.01	DC	DOB	Mathematical Analysis	44	2	2			Ex	**4**								56	28	28
2.	CS.1.1.02	DF	DOB	Data Structures	69	2		2		Ex	**5**								56	28	28
3.	CS.1.1.03	DF	DOB	Fundamentals of Programming	69	2		2		Ex	**5**								56	28	28
4.	CS.1.1.04	DC	DOB	Linear Algebra	44	2		2		Ex	**4**								56	28	28
5.	CS.1.1.05	DF	DOB	Computer Architectures	69	2		2		Ex.	**5**								56	28	28
6.	CS.1.1.06	DS	DOB	Introductory elements in computer science	22	1		1		V	**2**								28	14	14
7.	CS.1.1.07	DC	DOB	Physical education and sports I	36		1			V	**2**								14		14
8.	CS.1.2.13	DF	DOB	Differential and Integral Calculus								44	2	2			Ex	**4**	56	28	28
9.	CS.1.2.14	DF	DOB	Fundamental Algorithms								55	3		2		Ex	**5**	70	42	28
10.	CS.1.2.15	DF	DOB	Algebraical Fundamentals of Informatics								83	2		1		Ex	**5**	42	28	14
11.	CS.1.2.16	DC	DOB	Analytic and Differential Geometry								44	2		2		C	**4**	56	28	28
12.	CS.1.2.17	DS	DOB	Object Oriented Programming								69	2		2		Ex	**5**	56	28	28
13.	CS.1.2.18	DS	DOB	Specialization practice								19			4		V	**3**	56		56
14.	CS.1.2.19	DC	DOB	Physical education and sports II								36		1			V	**2**	14		14
				Optional Disciplines																	
15.	CS.1.1.08	DC	DOP	German Language I	22		2			V	2								28		28
16.	CS.1.1.09	DC	DOP	French Language I																	
17.	CS.1.1.10	DC	DOP	Ethics and academic integrity	11	1				V	1								14	14	
18.	CS.1.1.11	DC	DOP	Introductory elements in mathematics																	
19.	CS.1.2.20	DC	DOP	German Language II								22		2			V	2	28		28
20.	CS.1.2.21	DC	DOP	French Language II																	
Total hours					**386**	**12**	**5**	**9**		**5/0/2+2**	**30**	**372**	**11**	**5**	**11**		**4/1/2+1**	**30**	**742**	**322**	**420**
Total hours per week /Total number verification forms / Total number of credits					**26/5+0+4/30**						**30**	**27/4+1+3/30**						**30**	**Raport A/C = 1.30**		

LEGEND: ****C1 = formative category:*** *DF – fundamental disciplines, DS – specialization disciplines, DC – complementary disciplines.* *****C2 = category of optionality****: DOB – mandatory/imposed disciplines, DOP – optional disciplines, SI - Individual Study, Cs – course, A – Applications, S – seminar, L – laboratory, P – project, CR – credits, FV – assessment form, Ex - exam, C – colloquium.*

No.	Facultative Disciplines	Discipline code	1st Semester							2nd Semester							No. of hours per discipline		
			SI	C	S	L	P	F.V.	CR	SI	C	S	L	P	F.V.	CR	Total	Course	Applications
21.	Communication Sciences	CS.1.1.12	44	2	2			V	**4**								56	28	28
22.	Scientific Text Writing in Latex	CS.1.2.22								44	2		2		V	**4**	56	28	28
Total hours facultative disciplines/Total no. of credits: **4/4**										**4/4**							**112**	**56**	**56**

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CURRICULUM
2nd YEAR

No.	Discipline code	*C1	**C2	Disciplines	1st Semester (14 weeks)							2nd Semester (14 weeks)							No. of hours per discipline		
					SI	C	S	L	P	F.V.	CR	SI	C	S	L	P	F.V	CR	Total	Course	Applications
				Mandatory Disciplines																	
1.	CS.2.1.01	DF	DOB	Graphs Algorithms	55	3		2		Ex	**5**								70	42	28
2.	CS.2.1.02	DF	DOB	Operating Systems	55	3		2		Ex	**5**								70	42	28
3.	CS.2.1.03	DF	DOB	Formal Languages and Compilers	44	2		2		Ex	**4**								56	28	28
4.	CS.2.1.04	DF	DOB	Mathematical and Computational Logic	58	2		1		C	**4**								42	28	14
5.	CS.2.1.05	DS	DOB	Computational Geometry	44	2		2		Ex	**4**								56	28	28
6.	CS.2.1.06	DS	DOB	Software Systems Verification and Validation	58	2		1		V	**4**								42	28	14
7.	CS.2.1.07	DC	DOB	Physical education and sports III	36		1			V	**2**								14		14
8.	CS.2.2.11	DC	DOB	Differential and Partial Differential Equations								33	1	2			Ex	**3**	42	14	28
9.	CS.2.2.12	DS	DOB	Probability Theory and Elements of Mathematical Statistics								33	1		2		Ex	**3**	42	14	28
10.	CS.2.2.13	DS	DOB	Numerical Analysis								44	2		2		Ex	**4**	56	28	28
11.	CS.2.2.14	DF	DOB	Databases								69	2		2		Ex	**5**	56	28	28
12.	CS.2.2.15	DS	DOB	WEB Technologies								44	2		2		Ex	**4**	56	28	28
13.	CS.2.2.16	DF	DOB	Computability and Complexity								72	1		1		V	**4**	28	14	14
14.	CS.2.2.17	DS	DOB	Specialization Practice								19			4		V	**3**	56		56
15.	CS.2.2.18	DC	DOB	Physical education and sports IV								11		1			V	**2**	14		14
				Optional Disciplines																	
16.	CS.2.1.08	DC	DOP	German Language III	22		2			V	**2**								28		28
17.	CS.2.1.09	DC	DOP	French Language III																	
18.	CS.2.2.19	DC	DOP	German Language IV								22		2			V	**2**	28		28
19.	CS.2.2.20	DC	DOP	French Language IV																	
Total ore					**372**	**14**	**3**	**10**	**0**	**4/1/2+1**	**30**	**372**	**9**	**5**	**13**		**5/0/3+1**	**30**	**756**	**322**	**434**
Total hours per week /Total number verification forms / Total number of credits					**27/4+1+3/30**						**30**	**27/5+0+4/30**						**30**	**Raport A/C = 1.35**		

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No.	Facultative Disciplines	Discipline code	1st Semester							2nd Semester							No. of hours per discipline		
			SI	C	S	L	P	F.V.	CR	SI	C	S	L	P	F.V.	CR	Total	Course	Applications
1.	Mobile Application Development	CS.2.1.10	69	2		2		V	**5**								56	28	28
2.	Parallel and Concurrent Programming	CS.2.2.21								69	2		2		V	**5**	56	28	28
Total hours facultative disciplines/Total no. of credits			**4/5**							**4/5**							**112**	**56**	**56**

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CURRICULUM
3rd YEAR

Nr. crt.	Cod disciplină	*C1	**C2	Disciplines	1st Semester (14 weeks)							2nd Semester (12+2 weeks)							No. of hours per discipline		
					SI	C	S	L	P	F.V.	CR	SI	C	S	L	P	F.V	CR	Total	Course	Applications
				Mandatory Disciplines																	
1.	CS.3.1.01	DF	DOB	Databases Management Systems	69	2		2		Ex	**5**								56	28	28
2.	CS.3.1.02	DF	DOB	Computer Networks	55	3		2		Ex	**5**								70	42	28
3.	CS.3.1.03	DF	DOB	Artificial Intelligence	55	3		2		Ex	**5**								70	42	28
4.	CS.3.1.04	DS	DOB	Web Application Development	69	2		2		C	**5**								56	28	28
5.	CS.3.2.11	DF	DOB	Advanced Programming Techniques								69	2		2		Ex	**5**	56	28	28
6.	CS.3.2.12	DS	DOB	Optimization Techniques								69	2		2		Ex	**5**	56	28	28
7.	CS.3.2.13	DS	DOB	Computer Graphics								69	2		2		Ex	**5**	56	28	28
8.	CS.3.2.14	DF	DOB	Software Security								44	2		2		Ex	**4**	56	28	28
9.	CS.3.2.15	DS	DOB	Methodology for Developing the Bachelor's Thesis								19			4		V	**3**	56		56
				Optional Disciplines																	
10.	CS.3.1.05	DS	DOP	Software Engineering	69	2		2		V	**5**								56	28	28
11.	CS.3.1.06	DS	DOP	Advanced Data Structures																	
12.	CS.3.1.07	DS	DOP	Distributed Computing																	
13.	CS.3.1.08	DS	DOP	Pattern Recognition in Computer Vision	69	2		2		C	**5**								56	28	28
14.	CS.3.1.09	DS	DOP	Image Processing																	
15.	CS.3.2.16	DS	DOP	Criptography								58	1		2		C	4	42	14	28
16.	CS.3.2.17	DS	DOP	Fundamentals of Big Data																	
17.	CS.3.2.18	DS	DOP	Logical and functional programming								58	1		2		V	**4**	36	14	28
18.	CS.3.2.19	DS	DOP	Game development																	
19.	CS.3.2.20	DS	DOP	Blockchain fundamentals																	
Total hours					**386**	**14**		**12**		**3/2/0+1**	**30**	**486**	**10**		**16**		**4/1/1+1**	**30**	**728**	**336**	**392**
Total hours per week /Total number verification forms / Total number of credits								**26/3+2+1/30**			**30**				**26/4+1+2/30**			**30**	**Raport A/C = 1.17**		

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No.	Facultative Disciplines	Discipline Code	1st Semester							2nd Semester							No. of hours per discipline		
			SI	C	S	L	P	F.V.	CR	SI	C	S	L	P	F.V.	CR	Total	Course	Applications
1.	Human-computer interfaces	CS.3.1.09	69	2		2		V	**5**								56	28	28
2.	IT&C Entrepreneurship	CS.3.2.19								69	2		2		V	**5**	56	28	28
Total facultative hours/ Total number credits									**4/5**				**4/5**				**112**	**56**	**56**

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5. GENERAL BALANCE

according to the optionality of the disciplines in the curriculum

No..	Disciplines	No. of hours			Total		ARACIS Standard - Minimum proportion of hours allocated to DOP according to branches of science
		Year I	Year II	Year III	hours	%*	%
1	Mandatory (DOB)*	672	700	532	1904	85.53%	max. 90%
2	Optional (DOP)*	70	56	196	322	14.47%	min. 10%
TOTAL		742	756	728	2226	100%	100%
3	Facultative (DFA)*	112	112	112	336	15.09%	100% +DFA

**Cf. According to ARACIS standards*

6. GENERAL BALANCE

according to the formative category of the disciplines in the curriculum

Nr. crt.	Discipline	No. of hours			Total	
		Year I	Year II	Year III	hours	%
1	Fundamental (DF)	336	322	308	966	43.40%
2	Specialized (DS) + Writing the bachelor's thesis	140	308	420	868	38.99%
3	Complementary (DC)	266	126		392	17.61%
TOTAL		742	756	728	2226	100%

* For computing the percentages, the total activity hours of 2226 are considered as the base, including the minimum number of 112 hours of practice, without adding the hours that exceed this value.

GENERAL BALANCE Courses/Applications according to ARACIS specific standards = 1.27

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7. NOTES ON THE PRACTICE ACTIVITY

YEAR	CONTENTS
I	The specialization practice in the Computer Science study program takes place within IT companies or the Faculty of Mathematics and Computer Science and focuses on developing skills in document drafting and understanding the essential elements in writing an essay/report/project.
II	The specialization practice in the Computer Science study program takes place within IT companies or the Faculty of Mathematics and Computer Science and focuses on developing skills in creating a software application that solves a real-world problem.

8. ACADEMIC YEAR STRUCTURE

Year	**Educational activities**				**Exams**			**Practice**	**Holidays**		
	Sem. I		Sem. II		Winter	Summer	Academic debts		Winter	Spring	Summer
	weeks	hours/ week	weeks	hours/ week	Weeks	weeks	weeks	ore	weeks	weeks	weeks
I	14	26	14	27	3	3	2	56	2	1+1(Easter)	10
II	14	27	14	27	3	3	2	56	2	1+1(Easter)	10
III	14	26	14	26	3	3	1	56 (writing bachelor thesis)	2	1+1(Easter)	-

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9. SPECIFIC CONSTRAINTS FOR ACCESS/ADMISSION, PROMOTION/EQUIVALENCE

The professional activity of students is assessed quantitatively by giving the number of credit points allocated to each subject in the curriculum and by granting a grade between 1 and 10 to the corresponding exams, verifications, seminars, homework, projects, and lab reports. The minimum grade required to pass an exam/colloquium is 5. The results/grades obtained by students during their academic training are recorded in catalogs and program registers. After the final examination and the defense of the license thesis, the students graduate and receive Bachelor Diploma and Bachelor Diploma Supplement.

10. SELECTION OF OPTIONAL COURSES BY STUDENTS. SELECTION CRITERIA

The selection of optional courses is carried out in the last weeks of the second semester for the next academic year, except for first-year students, who make their choices at the time of enrollment during the Admission Contest. Students fill out a standard form that includes the list of courses offered as optional for both semesters of the next academic year and submit the completed forms to the faculty secretariat through the year representative. The optional course with the highest number of requests from students will be offered. In case there are two or more courses with the maximum number of requests, the faculty council will decide which course will be offered.

11. THE STRUCTUREOF THE GRADUATION EXAM

The license exam consists of two tests, awarded with two marks:
Mark 1 (N1) is awarded for the answers to two of the 10 questions from a list of topics (the list of topics is proposed by the coordinator). Both questions are chosen by the evaluating commission from the list of topics.
Mark 2 (N2) is awarded for the content and presentation of the thesis.

Each of the two marks, N1 and N2 must be at least 5. The final mark is Nfinal = (N1 + N2) / 2 and it must be at least 6.

10 credits are awarded for the license exam. The student who earned 190 credits by promoting the three years of study and the license exam receives the Bachelor's degree. The student who passed the third year of study (obtained the 180 compulsory and optional credits from the curriculum), but does not endorse or promote the license exam, receives the certificate of graduation of a specialization (without the Bachelor's degree).

12. LEARNING OUTCOMES

No.	LEARNING OUTCOMES			Disciplines
	Knowledge	Skills	Responsibility and Autonomy	
1.	The student/graduate identifies, explains, and argues fundamental concepts of data structures, algorithms, programming paradigms, and computer architecture.	The student/graduate designs, develops, and demonstrates complex software solutions using efficient algorithms and various programming paradigms.	The student/graduate coordinates technical teams for the development of software applications, making responsible decisions related to their optimization and integration.	Data Structures, Fundamentals of Programming, Computer Systems Architecture, Fundamental Algorithms, Design and Analysis of Algorithms
2.	The student/graduate chooses, explains, and specifies the mathematical foundations applied in computer science, including formal logic, algebra, probabilities, and statistics.	The student/graduate applies, evaluates, and proposes mathematical methods for modeling, simulating, and solving computer science problems.	The student/graduate develops interdisciplinary solutions by integrating mathematics with related fields and collaborating effectively with specialized teams.	Algebraic Foundations of Computer Science, Linear Algebra, Mathematical Analysis, Differential and Integral Calculus, Differential and Partial Differential Equations, Formal Languages and Compilers, Mathematical and Computational Logic, Probability Theory and Elements of Mathematical Statistics, Graph Algorithms, Computability and Complexity, Software for Statistics, Actuarial Algorithms, Optimization Techniques
3.	The student/graduate describes, identifies, and explains the functioning and administration of computer networks and operating systems.	The student/graduate proposes, designs, and justifies the configuration, security, and optimization of IT infrastructures. The student/graduate designs, applies, operates, and develops relational databases.	The student/graduate builds ethical and responsible IT solutions that are secure and scalable, collaborating with specialists from related fields.	Computer Networks, Network Administration, Operating Systems, UNIX Operating Systems
4.	The student/graduate identifies, chooses, and argues principles and models for database design.	The student/graduate designs, builds, and develops databases and database systems.	The student/graduate designs and manages activities necessary for the development of a database system	Databases, Database Management Systems

5.	The student/graduate chooses, describes, analyzes, and explains modern programming paradigms, including functional, object-oriented, and parallel programming, using current programming languages and frameworks.	The student/graduate designs, plans, builds, and develops scalable software applications and efficiently uses hardware and software resources.	The student/graduate produces software and continuously adapts it to new technologies and market requirements.	Object-Oriented Programming, Advanced Programming Techniques, Web Technologies, Web Application Development, Distributed Programming, Logical and Functional Programming, Design and Programming Environments, Mobile application development, Parallel and concurrent programming, Human-computer interfaces
6.	The student/graduate identifies, compares, recognizes, and describes advanced concepts and techniques in artificial intelligence, machine learning, and natural language processing.	The student/graduate designs, implements, and experiments with predictive models and develops applications based on machine learning algorithms.	The student/graduate applies an ethical framework in the use of AI, responsibly considering the social impact of proposed solutions.	Artificial Intelligence, Pattern Recognition in Computational Vision, Formal Languages and Compilers, Advanced Data Structures, Fundamentals of Big Data
7.	The student/graduate names, recognizes, and argues techniques for IT security, both software and hardware.	The student/graduate estimates IT security risks, proposes, solves, and tests IT security solutions.	The student/graduate knows and implements IT security requirements.	Cryptography, IT Systems Security, Blockchain Fundamentals, Network Administration
8.	The student/graduate states, provides examples, concludes, specifies, recognizes, and critically argues methods for designing and managing complex IT projects using modern strategies.	The student/graduate initiates, prepares, realizes, and proposes methods for developing complex IT projects. The student/graduate produces specific professional reports.	The student/graduate develops a collaborative environment and takes responsibility for the successful delivery of projects on time and according to requirements. The student/graduate organizes technical teams and manages the software project lifecycle.	Software Systems Engineering, Writing the Bachelor's Thesis, Specialized Practice, Design and Programming Environments, Visual Programming Environments, Advanced Data Structures
9.	The student/graduate identifies and describes fundamental concepts of analytical and differential geometry, 2D/3D graphic representation techniques, and image processing algorithms.	The student/graduate applies and integrates mathematical and graphic methods in the development of visual applications, interactive simulations, and intuitive user interfaces.	The student/graduate designs complex graphic applications, adopting ethical and creative behavior, taking responsibility for the quality and visual impact of developed products.	Analytical and Differential Geometry, Multimedia Techniques, Image Processing, Computer Graphics, Game Development, Image Processing

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Durata studiilor: 3 ani
Valabil începând cu ciclul de studii:2025-2028

10.	The student/graduate identifies, explains and correlates fundamental theoretical concepts regarding formal languages, language translation automation, computability limits, complexity classes, efficient data structures and formal methods for verification and validation of software systems.	The student/graduate applies formal and algorithmic techniques in the construction of lexical/syntactic analyzers, in the modeling and implementation of advanced data structures, in the analysis of algorithm complexity, and in the design of functional and regression tests for critical software systems.	The student/graduate adopts rigorous, systematic and ethical behavior in the process of developing, testing and validating software solutions, demonstrating responsibility in applying fundamental theories in practice, critical thinking and attention to the correctness and reliability of computer systems.	Formal Languages and Compilers, Computability and Complexity, Advanced Data Structures, Software System Verification and Validation
11.	The student/graduate knows numerical methods, optimization techniques, and mathematical models used for simulating computer processes.	The student/graduate applies optimization algorithms and numerical methods in solving real problems, designing and implementing simulable models.	The student/graduate proposes and develops optimized computational solutions, taking responsibility for the validity and efficiency of the models used.	Numerical Analysis, Optimization Techniques, Modeling and Simulation
12.	The student/graduate knows linguistic structures, specialized vocabulary, and common expressions in a foreign language for the field of computer science.	The student/graduate reads, writes, understands, and delivers presentations in the foreign language on specialized topics.	The student/graduate communicates effectively in international teams and uses the foreign language for continuous professional development.	Foreign Language: English Foreign Language: German
13.	The student/graduate knows professional and academic ethics norms, as well as the legislative and institutional framework of academic integrity.	The student/graduate recognizes ethical dilemmas and makes responsible decisions in teaching and research activities.	The student/graduate acts with integrity and responsibility in respecting ethical principles and deontological norms.	Ethics and Academic Deontology
14.	The student/graduate identifies and describes fundamental concepts of physical education and sports, principles of an active and healthy life, rules of sports games, and basic techniques for maintaining physical fitness.	The student/graduate applies and integrates physical exercises, training methods, and motor strategies into individual or team activities, demonstrating body control, coordination, and a spirit of fair play.	The student/graduate assumes an active and healthy lifestyle, promotes values such as discipline, perseverance and respect for oneself and others, demonstrating an ethical attitude in sporting and social contexts.	Physical education and sports I, Physical education and sports II, Physical education and sports III, Physical education and sports IV

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15.	The student/graduate identifies and describes fundamental concepts of scientific writing and structuring technical documents, as well as elements of syntax and organization in LaTeX (titles, formulas, tables, bibliography, citation styles, etc.).	The student/graduate applies and integrates advanced writing techniques in LaTeX to produce articles, scientific papers, and academic documentation, using specialized packages for clear mathematical, graphical, and semantic representation of content.	The student/graduate writes clear and rigorous scientific documents in LaTeX, demonstrating ethical and responsible behavior in the use of sources, respecting academic standards, and assuming the formal and scientific quality of the materials produced.	Writing scientific text in LaTex
16.	The student/graduate identifies and describes fundamental concepts of communication sciences, types and models of communication, theories of the message and processes specific to interpersonal, group, organizational and media communication.	The student/graduate applies and integrates strategies and techniques of effective communication in various contexts (academic, professional, digital), using verbal, nonverbal and paraverbal language appropriately, adapted to the situations and target audience.	The student/graduate demonstrates ethical, empathetic and responsible behavior in the act of communication, assuming active roles in social and professional interactions, with respect for diversity, inclusion and the quality of interpersonal relationships.	Communication Sciences
17.	The student/graduate identifies and explains fundamental concepts of digital entrepreneurship, IT business models, funding sources, innovation strategies and current technology market trends.	The student/graduate develops and validates business ideas in the field of information technologies, applying market analysis tools, product management, financial planning and pitching techniques.	The student/graduate demonstrates initiative, critical thinking and an innovative spirit in the development of entrepreneurial projects in IT, assuming responsibility for the decisions made, professional ethics and the economic and social impact of their own solutions.	Entrepreneurship in IT

13. ACCESS TO FURTHER STUDIES FOR PERSONAL AND PROFESSIONAL DEVELOPMENT

Graduates of the license program can enroll in a master program or other postgraduate programs in the same field.

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