



MINISTERUL EDUCAȚIEI
UNIVERSITATEA „AUREL VLAICU” DIN ARAD
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SUBJECT SHEET

1. Program Data

1.1. Higher education institution	"AUREL VLAICU" UNIVERSITY OF ARAD
1.2. Faculty	of Exact Sciences
1.3. Department	Department of Mathematics and Computer Science
1.4. Field of study	Mathematics
1.5. Academic year	2024-2025
1.6. Cycle of studies	License
1.7. Specialization / Study Program	Computer Science Mathematics
1.8. Form of education	Full-time education (IF)

2. Discipline Data

2.1. Name of the discipline	GICS5F18 Didactics of Specialization B - Computer Science
2.2. Education Plan Holder	dr. Deac Dan-Stelian
2.3. Assistant	dr. Deac Dan-Stelian
2.4. Year of study	3
2.5. Semester	1
2.6. Type of assessment	ES
2.7. Discipline regime	Ace

3. Total estimated time (hours per semester of teaching activities)

3.1. Number of hours per week	4
3.2. Hours of classes per week	2
3.3. Seminar/laboratory/project hours per week	2
3.4. Total hours of the curriculum	56
3.5. Course hours per semester	28
3.6. Seminar/laboratory/project hours per semester	28
Time Pool Distribution [Hours]	
3.4.1. Study by textbook, course material, bibliography and notes	30
3.4.2. Additional documentation in the library, on specialized electronic platforms and in the field	20
3.4.3. Preparation of seminars/laboratories, assignments, papers, portfolios and essays	10
3.4.4. Tutoring	5
3.4.5. Examinations	4
3.4.6. Other activities ...	0
3.7. Total hours of individual study	69
3.8. Total hours per semester	125
3.9. Number of credits	5

4. Preconditions (where applicable)

4.1. Curriculum prerequisites	Going through the psycho-pedagogical training subjects, fundamental – compulsory - Educational Psychology - Pedagogy I - Pedagogical foundations; Theory and methodology of the curriculum - Pedagogy II – Theory and methodology of training; Theory and methodology of evaluation Going through the disciplines of didactic training and specialized practice
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4.2. Competence preconditions	a. Professional - cognitive and functional - actional; b. Complementary – linguistic, digital c. Transversal – role, personal and professional development d. Managerial – leadership, guidance and control
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5. Necessary conditions (where applicable)

5.1. Conditions for the course	Room equipped with video projector, laptop and appropriate software - Microsoft Office, ppt presentations, flipcharts, markers
5.2. Conditions for the seminar	Methodological laboratory equipped with computers and appropriate software - Microsoft Office, curriculum, curriculum, teaching projects, etc.
5.3. Conditions for conducting the laboratory	
5.4. Conditions for carrying out the project	

6. Specific competences acquired (where applicable)

6.1. Professional competences	Cognitive: • CP1. To form the ability to adequately integrate the concepts and theories in the field of computer science teaching, as a component part of the educational sciences, in the student's knowledge system and the use of a specific language, appropriate to the computer science discipline; • CP2. Development of the communication component – face-to-face and remote (virtual) – in order to strengthen the didactic one. Functional – Actional • CP3. Developing students' skills of designing, organizing, developing, evaluating and regulating the educational process proposed to students in the computer science specialty • CP4. Putting the student in processual, active situations, using innovative, interactive teaching-learning-evaluation strategies (of the educational relationship), appropriate to the particularities of the educational group, the purpose and type of teaching activity; • CP5. Stimulating transformative learning by training the student as a methodological co-author in the educational act. Attitudinal • CP6. Adaptability to the evolution of didactic, communicational and informational technology and the acquisition of an appropriate, positive behavior, related to its use in educational situations; CP7. Motivation for lifelong learning.
6.2. Cross-cutting competency	• CT1. Developing students' autonomy and responsibility by acquiring and applying the principles of didactics, information and the norms of ethics and professional deontology specific to the education professional. CT2. To form and develop the capacity to be open to the various social interactions in a globalized, diverse and multicultural world. CT3. Efficient cooperation in professional, interdisciplinary work teams, specific to the development of projects and programs in the field of educational sciences; • CT4. Establishing one's own training needs in relation to the national and European legal framework that regulates career development

7. Objectives of the discipline (where applicable)

7.1. General objective of the discipline	• Knowledge and application of concepts and theories in the field of computer science teaching in educational practice.
7.2. Specific objectives	- To develop an integrative vision on the didactics of information and their application in the design and development of learning situations. - Acquiring the knowledge and skills necessary for a future teacher, in the derivability of specific competences into concrete objectives, in the use of an appropriate teaching strategy (methods, means and forms of organization) and the integration of the evaluation and regulation of the teaching act in the learning situations. - Interdisciplinary and even transdisciplinary design of the future educational relationship (lessons, activities) - Forming a creative, interactive, democratic, teachable-centered teaching style. It manifests a responsible, positive attitude towards the teaching profession.

8. Contents (where applicable)

8.1 Course Content	Teaching methods	Observations
1. Didactics of informatics, component of educational sciences a) Didactics. Concept. b) The development of didactics as an independent science. c) General, special and adult didactics. d) Elements of computer science teaching	Explanation,Demonstration,Modeling,Problematization,Algorithmization,Brainstorming,Reflection	2h
2. Evaluation. Stages. Types of evaluation. Traditional and alternative assessment tools.	Explanation,Demonstration,Modeling,Problematization,Algorithmization,Brainstorming,Reflection	2h
3. Teaching methods. Types of methods.	Explanation,Demonstration,Modeling,Problematization,Algorithmization,Brainstorming,Reflection	2h
4. General teaching methods used in computer science subjects.	Explanation,Demonstration,Modeling,Problematization,Algorithmization,Brainstorming,Reflection	4h
5. Educational objectives. Operationalization of objectives. Models of operationalization of objectives.	Explanation,Demonstration,Modeling,Problematization,Algorithmization,Brainstorming,Reflection	2h
6. Characteristics and principles of computer science didactics.	Explanation,Demonstration,Modeling,Problematization,Algorithmization,Brainstorming,Reflection	4h
7. Curriculum design.	Explanation, Experiment, Modeling, Problematization, Algorithmization, Brainstorming, Learning by Doing,	4h
8. Didactic strategies.	Explanation, Experiment, Modeling, Problematization, Algorithmization, Brainstorming, Learning by Doing,	4h
9. The algorithm of didactic design.	Explanation, Experiment, Modeling, Problematization, Algorithmization, Brainstorming, Learning by Doing,	4h
8.2 Course Bibliography		

1. Dzitac I. et al. (2003), Didactica informaticii, Ed. Univ. din Oradea. 2. Chiş, V., (2005), Contemporary Pedagogy. Pedagogy for Competences, House of Science Books, Cluj-Napoca 3. Egan, K., (2007), Teaching as a Story, Didactica Press Publishing House, Bucharest 4. Herlo, D., (2006), Didactica, Arad, Ed. Univ. Aurel Vlaicu 5. Neacşu, I., (1990), Training and Learning, Scientific Publishing House, Bucharest 6. Stoica, A., (2001), Current Evaluation and Exams, Prognosis Publishing House, Bucharest; 7. Deac D. S. (2023), Course Support, SUMS		
8.3 Seminar Content	Teaching methods	Observations
1. General Didactics vs. Didactics of Informatics	Heuristic approach, Explanation, case study, problematization, algorithmization, exercise, IAC	2h
2. Teaching methodology: practical presentation of training and self-training methods, criteria for choosing teaching methods.	Heuristic Approach, Explanation, Case Study, Problematization, Algorithmization, Exercise, IAC	6 hours
3. Application of interactive, student-centered methods to content sequences within the computer science discipline	Exercise, group work, IAC	4h
4. Use of teaching means. Analysis and applications. Test development.	Demonstration, experiment, learning by discovery, learning by doing, IAC	4h
5. Forms of organization of the teaching activity and the educational group. Examples	Heuristic approach, case study, problematization, algorithmization, exercise	2h
6. Didactic design. Applications	Explanation, Demonstration, Modeling, Learning by Discovery, Learning by Practice, IAC	4h
7. Evaluation. Methods, procedures and techniques of evaluation. Assessment tools. Online test	Heuristic Approach, Explanation, Case Study, Problematization, Algorithmization, Exercise, IAC	4h
8. Statistical data processing	Demonstration, Exercise, IAC	2h
8.4 Seminar Bibliographies 1. Chiş, V., (2005), Contemporary Pedagogy. Pedagogy for Competences, House of Science Books, Cluj-Napoca 2. Dzitac I. et al. (2003), Didactica informaticii, Ed. Univ. din Oradea. 3. Egan, K., (2007), Teaching as a Story, Didactica Press Publishing House, Bucharest 4. Stoica, A., (2001), Current Evaluation and Exams, Prognosis Publishing House, Bucharest; 5. Chiş, V.E., (2001), The Teacher's Activity between Curriculum and Evaluation, Cluj-Napoca, Cluj University Press Publishing House		
8.5 Lab Content	Teaching methods	Observations
8.6 Laboratory bibliography		
8.7 Project Content	Teaching methods	Observations
8.8 Project Bibliography		

9. Corroborating/validating the contents of the discipline (where applicable)

<p>In order to design this sheet, to select the contents, to choose the teaching/learning methods and the evaluation methods, the subject holder organized virtual meetings with other teachers in the field, tenured in other higher education institutions, coordinators of similar programs.</p> <p>Dialogue was held with representatives of the ISJ, with mentors and mentors from pre-university education in order to identify the needs and expectations of employers and practitioners in the field of education on the minimum competences of future teachers.</p>
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10. Assessment (where applicable)

Activity Type	Evaluation criteria	Evaluation methods	Weight of the final grade
10.1. Course	- Concise presentation, through a micro-essay, of the difference: general didactics-didactics of computer science; - Appreciation of the activity along the way and the presence	Essay grading Grading of activity along the way and attendance	30% 10%
10.2. Seminar	- Elaboration in groups of two students of a knowledge test with all types of items and exemplification of the statistical processing of data with the help of a computer application and determination of the mean, median, central tendency etc (xls, SPSS) - Application of knowledge in the realization of didactic projects (minimum 1/student);	Grading the test along the way Grading the didactic projects	40% 20%
10.3. Laboratory			
10.4. Project			
10.5 Minimum Performance Standard - minimum achievement of the work tasks during the teaching activities (course and seminar) - the realization of the microessay; - carrying out a didactic project in the discipline of computer science			