



## SYLLABUS

### 1. Study programme

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	Informatics
1.5. Study level	2024-2025
1.6. Ciclu de studii	Bachelor
1.7. Study programme / Qualification	Computer Science
1.8. Form of education	Full – Time study

### 2. Course details

2.1. Name of the course	GI4F4A18 Security of Information Systems
2.2. Course coordinator	Bucerzan Dominic PhD
2.3. Seminar/laboratory/project coordinator	Halic Catalin-Raul IT Specialist
2.4. Study year	2
2.5. Semester	2
2.6. Evaluation type	ES
2.7. Course type	Op

### 3. Estimated total time (hours per semester)

3.1. Hours per week	4
3.2. Lecture hours per week	2
3.3. Seminar/laboratory/project hours per week	2
3.4. Total hours per curriculum	56
3.5. Lecture hours per semester	28
3.6. Seminar/laboratory/project hours per semester	28
Time division [hrs]	
3.4.1. Independent study from textbooks, course support, bibliography and notes	69
3.4.2. Additional reading (libraries, specialized electronic platforms and field research)	30
3.4.3. Preparing of seminars/laboratories/projects, homework, papers, portfolios and essays	35
3.4.4. Tutorial coaching	0
3.4.5. Examinations	4
3.4.6. Other activities	0
3.7. Total individual study hours	69
3.8. Total hours per semester	125
3.9. Number of ECTS credits	5

### 4. Prerequisites (if applicable)

4.1. Curriculum related	
4.2. Competence related	

### 5. Conditions (if applicable)

5.1. for the lecture	Classroom equipped with video projector, internet connection, computers and appropriate specific software
5.2. for the seminar	
5.3. for the laboratory	Laboratory equipped with computers, internet connection and appropriate software
5.4. for the project	

#### 6. Specific educational objectives (competences to be acquired)

6.1. Competențe profesionale	<b>C3.Using computer tools in interdisciplinary context; C6.Designing and management af computer networks; C7. Using modern technologies for information security.</b>
6.2. Competențe transversale	<b>CT1.Applying the rules of organized and efficient work, of responsible attitudes towards teaching-scientific field, to value the own creative potential, while respecting the principles and norms of professional ethics. CT2.Efficient conduct of the activities organized in an inter-disciplinary group and developing the personal communication skills, networking and collaboration with various groups; CT3.Using of efficient methods and techniques for learning, informing, research and development of the capacity to value knowledge, adapting to the requirements of a dynamic society and communicating in English and in an Internationally widespread language.</b>

#### 7. Course outcomes (resulting from the specific educational objectives to be acquired)

7.1. General outcomes	<b>The information security course lays the groundwork for understanding the challenges of 21st century information security technology and specific methods of defending against cyber attacks.</b>
7.2. Specific outcomes	<b>After the course, students must know the main dangers related to computer crime as well as defense methods; the main technologies specific to the field will be studied.</b>

#### 8. Outline (if applicable)

8.1 Lecture Outline	Teaching methods	Remarks
1. Information security in the 21st century. Internet; Security areas and risk mitigation; Methods for ensuring IT information security	Participatory lecture, case study and problematization	
2. Cryptography	interactive exposure, problematization, case study	
3. Detection and prevention tools	interactive exposure, problematization, case study	
4. Security in operating systems. Windows	interactive exposure, problematization, case study	
5. Security in operating systems. . Linux	interactive exposure, problematization, case study	
6. Security of computer networks	interactive exposure, problematization, case study	
7. E-commerce security	interactive exposure, problematization, case study	

#### 8.2 Lecture References

1. Bucerzan Dominic, Securitatea informatiei economice in retele de calculatoare, Teza de doctorat, ASE Bucuresti
- 2.Patriciu Victor-Valeriu, Criptografia și securitatea rețelor de calculatoare, Ed.Tehnică, 1994
- 3.Schneier Bruce, Applied Cryptography, John Wiley & Sons, Inc. , 1996
- 4.Tanenbaum S. Andrew, Computer Networks, Computer Press Agora, 1998
- 5.<http://www.wikipedia.org>
- 6.<http://www.hackmagedon.com>
- 7.Leliana Valentina Părvulescu, Igor Vaslav Vitale, Psihologie aplicată în CyberSecurity, Brăila :Editura Sfântul Ioan, 2016
- 8.Hu Xiong, Zhen Qin, Athanasios V. Vasilakos, Introduction to Certificateless Cryptography, CRC Press, 2016
9. Information Security Management System, ISO 27001.
10. D. Naccache, E. Simion, Cryptography and Information security. Applications, MATRIX ROM, 2011, ISBN 978-973-755-675-2, 107 pages.

8.3 Seminar Outline	Teaching methods	Remarks
8.4 Seminar References		
8.5 Laboratory Outline	Teaching methods	Remarks
1. Information security in the 21st century. Internet; Security areas and risk mitigation; Methods for ensuring IT information security	interactive exposure, problematization, case study	
2. Cryptography	interactive exposure, problematization, case study	
3. Detection and prevention tools	interactive exposure, problematization, case study	
4. Security in operating systems. Windows	interactive exposure, problematization, case study	
5. Security in operating systems. . Linux	interactive exposure, problematization, case study	
6. Security of computer networks	interactive exposure, problematization, case study	
7. E-commerce security	interactive exposure, problematization, case study	
8.Practices in security management Standards and legislation; case studies	interactive exposure, problematization, case study	
8.6 Laboratory References		
1. Bucerzan Dominic, Securitatea informatiei economice in retele de calculatoare, Teza de doctorat, ASE Bucuresti 2.Patriciu Victor-Valeriu, Criptografia și securitatea rețelelor de calculatoare, Ed.Tehnică, 1994 3.Schneier Bruce, Applied Cryptography, John Wiley & Sons, Inc. , 1996 4.Tanenbaum S. Andrew, Computer Networks, Computer Press Agora, 1998 5.http://www.wikipedia.org 6.http://www.hackmagedon.com 7.Leliana Valentina Părvulescu, Igor Vaslav Vitale, Psihologie aplicată în CyberSecurity, Brăila :Editura Sfântul Ioan, 2016 8.Hu Xiong, Zhen Qin, Athanasios V. Vasilakos, Introduction to Certificateless Cryptography, CRC Press, 2016 9. Information Security Management System, ISO 27001. 10. D. Naccache, E. Simion, Cryptography and Information security. Applications, MATRIX ROM, 2011, ISBN 978-973-755-675-2, 107 pages.		
8.7 Project Outline	Teaching methods	Remarks
8.8 Project Outline		

**9. Correlation of course outline with the expectations of the epistemic community, professional associations and representative employers within the field of the program**

The problem of IT security is acute in this period of the development of modern society; IT criminality is a reality of the Internet and electronic commerce. The content of the discipline provides the necessary knowledge so that future specialists can take security measures using cryptographic techniques that are absolutely necessary in any company.

**10. Evaluation / Grading (if applicable)**

Activity type	Evaluation criteria	Evaluation methods	Percentage of the final grade
10.1. Lecture	Completeness of knowledge and degree of assimilation	Oral assessment (final exam): - conversation assessment	50%
10.2. Seminar			
10.3. Laboratory	Ability to apply acquired knowledge in information security	Practical work + project	50%
10.4. Project			
10.5 Minimal performance standard			
Acquisition of basic theoretical concepts in information security and the ability to apply them in specific projects.			
The minimum mark for each test must be 5 (five).			

Course coordinator

Bucerzan Dominic PhD

Seminar/laboratory/project coordinator  
Halic Catalin-Raul  
IT Specialist

Head of the Department  
Lect.univ.dr. Lorena Camelia POPA

Dean  
Prof.univ.dr. Sorin-Florin NĂDĂBAN