COURSE SYLLABUS

Academic year 2025 - 2026

1. Programme Information

1.1. Higher education institution	Lucian Blaga University of Sibiu
1.2. Faculty	Faculty of Science
1.3. Department	Mathematics and Informatics
1.4. Field of study	Informatics
1.5. Level of study[1]	Master
1.6. Programme of study/qualification	Cybersecurity

2. Course Information

2.1. Name of course	Design of Governmental Security Systems			Code	FSTI.MAI.CS.M.SA.2.2020.E-6.5
2.2. Course coordinator	Lecturer PhD. Oana-Adriana Ticleanu				
2.3. Seminar/laboratory coordinator	Lecturer PhD. Oana-Adriana Ticleanu				
2.4. Year of study[2]	1	2.5. Semester[3]	2	2.6. Evaluation form[4]	E
2.7. Course type[5]	R	2.8. The formative category of the course[6]			F

3. Estimated Total Time

3.1. Course Extension within the Curriculum – Number of Hours per Week				
3.1.a. Lecture	3.1.b. Seminar	3.1.c. Laboratory	3.1.d. Project	Total
2		2		**4**
3.2. Course Extension within the Curriculum – Total Number of Hours within the Curriculum				
3.2.a. Lecture	3.2.b. Seminar	3.2.c. Laboratory	3.2.d. Project	Total[7]
28		28		**56**

Time Distribution for Individual Study[8]	**Hours**
Learning by using course materials, references and personal notes	27
Additional learning by using library facilities, electronic databases and on-site information	27
Preparing seminars / laboratories, homework, portfolios and essays	29
Tutorial activities[9]	7
Exams[10]	4

3.3. Total Individual Study Hours[11] *(NOSI$_{sem}$)*	**94**
3.4. Total Hours in the Curriculum (*NOAD$_{sem}$*)	**56**
3.5. Total Hours per Semester[12] (*NOAD$_{sem}$ + NOSI$_{sem}$*)	**150**
3.6. No. of Hours / ECTS	**25**
3.7. Number of credits[13]	**6**

4. Prerequisites (if needed)

4.1. Courses that must be successfully completed first (from the curriculum)[14]	Cybersecurity Introduction
4.2. Competencies	-

5. Conditions (where applicable)

5.1. For course/lectures[15]	Classroom, equipped with blackboard, computer, video projector and software
5.2. For practical activities (lab/sem/pr/app) [16]	Laboratory room equipped with computers

6. Learning Outcomes [17]

Number of credits assigned to the discipline: 6				
Learning outcomes				Credit distribution by learning outcomes
Nr. crt.	Knowledge	Skills	Responsibility and autonomy	
LO 1	The student defines and explains the particularities of governmental models and methods for adapting general security models to these contexts.	The student analyzes and compares security models and designs adapted solutions for governmental systems.	The student demonstrates responsibility in selecting appropriate models and adopts a critical perspective.	1.5
LO 2	The student describes software and hardware security models for governmental financial and public systems.	The student designs and evaluates security mechanisms applied to these systems.	The student assumes responsibility for the accuracy of the analysis and proposes improvement measures.	1.5
LO 3	The student explains the specifics of security in military systems and intelligence service organizations.	The student develops and tests security models for such highly critical systems.	The student shows autonomy and responsibility in handling sensitive information and complies with ethical and legal standards.	1.5
LO 4	The student understands the interaction modes of governmental systems with state and private corporations and the rules for model refactoring.	The student implements and optimizes security models in complex integration contexts.	The student shows high responsibility in coordinating processes and adopts professional conduct.	1.5

7. Course objectives (resulted from developed competencies)

7.1. Main course objective	Defining the peculiarities of the security systems of government hardware and software models. Understanding the notions and requirements necessary for the implementation of such systems.
1.1. Specific course objectives	Acquiring the necessary skills to be able to implement security systems for government data handling models.

8. Content

8.1. Lectures[18]	**Teaching methods**[19]	**Hours**
Defining the particularities of governmental models. General security models and ways of adapting them to government models.	Lecture, use of video projector, discussions with students	4
Models for securing software and hardware systems within government financial systems	Lecture, use of video projector, discussions with students	4
Security models of software and hardware systems within public government systems	Lecture, use of video projector, discussions with students	4
Security models of software and hardware systems within military systems	Lecture, use of video projector, discussions with students	4
Security models of software and hardware systems within intelligence service organizations	Lecture, use of video projector, discussions with students	4
Modes of interaction of government systems with those of state and private corporations	Lecture, use of video projector, discussions with students	4
The implementation of government models and their refactoring rules	Lecture, use of video projector, discussions with students	4
	Total lecture hours:	**28**

8.2. Practical activities (8.2.a. Seminar[20]/ 8.2.b. Laboratory[21]/ 8.2.c. Project[22])	**Teaching methods**	**Hours**
Government security model analysis software	Use of video projector, discussions with students	4
Designing the software used in government financial systems. Implementation, testing, dynamic refactoring.	Use of video projector, discussions with students	4
Designing the software used in government public systems. Implementation, testing, dynamic refactoring.	Use of video projector, discussions with students	4
Designing the software used in government military systems. Implementation, testing, dynamic refactoring.	Use of video projector, discussions with students	4
Designing the software used in governmental intelligence organizations. Implementation, testing, dynamic refactoring.	Use of video projector, discussions with students	4
Designing the software used in interaction systems with other entities of government security systems. Implementation, testing, dynamic refactoring.	Use of video projector, discussions with students	4
Refactoring techniques of government data security systems	Use of video projector, discussions with students	4
	Total seminar/laboratory hours:	28

9. Bibliography

9.1. Recommended Bibliography	1. Saqib Ali et all, Cyber Security for Cyber-Physical Systems, Springer 2019 2. R. M. Clark, S. Hakim, Cyber-Physical Security - Protecting critical infrastructure at the State and Local Level, Springer 2019 3. J. M. Kizza, Guide to Computer Network Security, Springer 2019

9.2. Additional Bibliography	1. C. Hadnagy, Social Engineering: The Science of Human Hacking, Wiley 2018 2. K. Mitnick, The art of invisibility, IKP 2017

10. Conjunction of the discipline's content with the expectations of the epistemic community, professional associations and significant employers of the specific study program[23]

It is done through regular contacts with the representatives of the companies. Cybersecurity topic is actual and is of great interest in existing software companies on the local, national and global market.

11. Evaluation

Activity Type	11.1 Evaluation Criteria	11.2 Evaluation Methods		11.3 Percentage in the Final Grade	Obs.[24]
11.4a Exam / Colloquy	• Theoretical and practical knowledge acquired (quantity, correctness, accuracy)	Tests during the semester[25]:	%	50% (minimum 5)	CEF
		Homework:	%		
		Other activities[26]:	%		
		Final evaluation:	50%		
11.4b Seminar	• Frequency/relevance of participation or responses	Evidence of participation, portfolio of papers (reports, scientific summaries)		5% (minimum 5)	nCPE
11.4c Laboratory	• Knowledge of the equipment, how to use specific tools; evaluation of tools, processing and interpretation of results	• Written questionnaire • Oral response • Laboratory notebook, experimental works, reports, etc. • Practical demonstration		5% (minimum 5)	nCPE
11.4d Project	• The quality of the project, the correctness of the project documentation, the appropriate justification of the chosen solutions	• Self-evaluation, project presentation • Critical evaluation of a project		40% (minimum 5)	nCPE
11.5 Minimum performance standard[27] The student is able to explain the basic concepts of governmental security models, apply a simple analysis or implementation model to an example governmental system (e.g., financial or public), and produce a basic report with conclusions and recommendations.					

The Course Syllabus will encompass components adapted to persons with special educational needs (SEN – people with disabilities and people with high potential), depending on their type and degree, at the level of all curricular elements (skills, objectives, contents, teaching methods, alternative assessment), in order to ensure fair opportunities in the academic training of all students, paying close attention to individual learning needs.

Filling Date: |_1_|_5_| / |_0_|_9_| / |_2_|_0_|_2_|_5_|

Department Acceptance Date: |_3_|_0_| / |_0_|_9_| / |_2_|_0_|_2_|_5_|

	Academic Rank, Title, First Name, Last Name	Signature
Course Teacher	Lecturer PhD. Oana-Adriana Ticleanu	
Study Program Coordinator	Associated Professor PhD. Nicolae Constantinescu	
Department Head	Professor PhD. Mugur Acu	

[1] *Bachelor / Master*
[2] *1-4 for bachelor, 1-2 for master*
[3] *1-8 for bachelor, 1-3 for master*
[4] *Exam, colloquium or VP A/R - from the curriculum*
[5] *Course type: R = Compulsory course; E = Elective course; O = Optional course*
[6] *Formative category: S = Specialty; F = Fundamental; C = Complementary; I = Fully assisted; P = Partially assisted; N = Unassisted*
[7] *Equal to 14 weeks x number of hours from point 3.1 (similar to 3.2.a.b.c.)*
[8] *The following lines refer to individual study; the total is completed at point 3.37.*
[9] *Between 7 and 14 hours*
[10] *Between 2 and 6 hours*
[11] *The sum of the values from the previous lines, which refer to individual study.*
[12] *The sum (3.5.) between the number of hours of direct teaching activity (NOAD) and the number of hours of individual study (NOSI) must be equal to the number of credits assigned to the discipline (point 3.7) x no. hours per credit (3.6.)*
[13] *The credit number is computed according to the following formula, being rounded to whole neighbouring values (either by subtraction or addition*

$$No.credits = \frac{NOCpSpD \times C_C + NOApSpD \times C_A}{TOCpSdP \times C_C + TOApSdP \times C_A} \times 30\ credits$$

Where:

- NOCpSpD = Number of lecture hours / week / discipline for which the credits are calculated
- NOApSpD = Number of application hours (sem./lab./pro.) / week / discipline for which the credits are calculated
- TOCpSdP = Total number of course hours / week in the Curriculum
- TOApSdP = Total number of application hours (sem./lab./pro.) / week in the Curriculum
- C_C/C_A = Course coefficients / applications calculated according to the table

Coefficients	**Course**	**Applications (S/L/P)**
Bachelor	2	1
Master	2,5	1,5
Bachelor - foreign language	2,5	1,25

[14] *The courses that should have been previously completed or equivalent will be mentioned*
[15] *Board, video projector, flipchart, specific teaching materials, online platforms, etc.*
[16] *Computing technology, software packages, experimental stands, online platforms, etc.*
[17] *Competences from the Grids related to the description of the study program, adapted to the specifics of the discipline*
[18] *Chapter and paragraph titles*
[19] *Exposition, lecture, board presentation of the studied topic, use of video projector, discussions with students (for each chapter, if applicable)*
[20] *Discussions, debates, presentations and/or analyses of papers, solving exercises and problems*
[21] *Practical demonstration, exercise, experiment*
[22] *Case study, demonstration, exercise, error analysis, etc.*
[23] *The relationship with other disciplines, the usefulness of the discipline on the labour market*
[24] *CPE – Conditions Exam Participation; nCPE – Does Not Condition Exam Participation; CEF - Conditions Final Evaluation; N/A – not applicable*
[25] *The number of tests and the weeks in which they will be taken will be specified*
[26] *Scientific circles, professional competitions, etc.*
[27] *The minimum performance standard in the competence grid of the study program is customized to the specifics of the discipline, if applicable*