

Syllabus

1. Program information

1.1. Institution	ACADEMY OF ECONOMIC STUDIES
1.2. Faculty	Economic Cybernetics, Statistics and Informatics
1.3. Departments	(Department) INFORMATICA SI CIBERNETICA ECONOMICA
1.4. Field of study	Economic Informatics
1.5. Cycle studies	Master Studies
1.6. Education type	Full-time
1.7. Study program	IT&C Security
1.8. Language study	
1.9. Academic year	2017-2018

2. Course information

2.1. Name	Security Engineering of Virtual Machines, Compilers and Multi-Agent Platforms (AI)								
2.2. Code	17.0241IF2.1-0005								
2.3. Year of studies	2	2.4. Semester	1	2.5. Assessment type	Exam	2.6. Course type	O	2.7. Number of ECTS	4
2.8. Instructors									

3. Total estimated time

3.1. Number of weeks	14.00		
3.2. Number of hours per week	2.00	of which	
		C(C)	1.00
		S(S)	1.00
3.3. Total hours from curriculum	28.00	of which	
		C(C)	14.00
		S(S)	14.00
3.4. Total hours of study per semester (ECTS*25)	100.00		
3.5. Total hours of individual study	72.00		
<i>Time distribution for individual study</i>			
Study the textbook, course support, bibliography and notes			
Further reading in the library, on the online platforms and field			
Preparing seminars, labs, homework, portfolios and essays			
Tutoring			
Examinations			
Other activities			

4. Prerequisites

4.1. About curriculum	Distributed Systems Security
4.2. About skills	Java Programming

5. Requirements

C(C)	Course lectures take place in rooms with multimedia teaching equipment.
S(S)	Laboratories are held in rooms that have PCs with Internet access. The development environment used is Microsoft Visual Studio 2010 or 2012, Ubuntu within virtual machines with GCC, Java plus necessary tools.

6. Skills covered

	C5	Application of modern concepts and paradigms of IT security to the new context defined for the knowledge society
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7. Course objectives

7.1. General objective	Presentation of secure informatic systems based on intelligent agents. Presentation of certain mechanisms, technologies and techniques for IT&C security achieved with artificial intelligence. Security issues for translators, compilers and interpreters.
7.2. Specific objectives	Transfer tehnologic pentru: -retele neuronale -sisteme multi-agent -componente de tip parser -compilatoare, translatoare si interpretoare

8. Course contents

8.1. C(C)		Teaching methods	Advices
1	1. Artificial intelligence introductory concepts		
2	2. Neural networks and genetic computing		
3	3. Types of agents		
4	4. Securing the access to agents resources		
5	5. Attack and defense typologies of intelligent software agents		
6	6. Re-engineering determined by the objective change.		
7	7. Re-engineering determined by the evaluation process.		
8	8. Engineering and re-engineering of controlled information loss entities		
9	9. Engineering and re-engineering of controlled added information entities		
10	10. Engineering and re-engineering through transformation		
11	11. Programmed translators in C/C++ and Java		
12	12. Translators security issues		

Bibliography

- James Watson, Intelligent Java Applications, John Wiley & Sons, 2001
- Eric Rescorla, SSL and TLS: Designing and Building Secure Systems, Addison-Wesley, 2001
- Ion IVAN, Marius POPA, Cosmin TOMOZEI , Re-ingineria entităților text, Revista Romana de Automatica si Informatica, 2005
- Ion IVAN, Cătălin BOJA, Metode statistice în analiza software, ASE, 2004

8.2. S(S)		Teaching methods	Advices
1	1. Artificial intelligence introductory concepts		
2	2. Neural networks and genetic computing		
3	3. Types of agents		
4	4. Securing the access to agents resources		
5	5. Attack and defense typologies of intelligent software agents		
6	6. Re-engineering determined by the objective change.		
7	7. Re-engineering determined by the evaluation process.		
8	8. Engineering and re-engineering of controlled information loss entities		
9	9. Engineering and re-engineering of controlled added information entities		
10	10. Engineering and re-engineering through transformation		
11	11. Programmed translators in C/C++ and Java		
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9. Course contents corroboration with the demands of epistemic community representatives, professional associations and representative employers

Taking into account the best practices from IT&C field applied by big companies such as: Intel, Oracle, Microsoft, IBM, HP and professional consortiums such as: Apache, Red Hat, ISO/IEC.

10. Assessment

Activity	Assessment criteria	Assessment methods	Percentage in the final grade
10.1. S(S)		Applied activities, practical or project certificates/laboratory/tests, tests during the module, auditing tests	40.00
10.2. Final assessment		Final examination	60.00
10.3. Grading scale	Whole notes 1-10		
10.4. Minimum performance standard	Knowledge required: development of a neural network feed-forward back-propagation used in pattern recognitions. The point granted by default is included in the weights assigned to the types of assessments.		

Completion date,
07/10/2016

Instructors,

Approval date of department

Director of department,