

# 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 | English   |
| 1.9. Academic year  | 2016-2017   |

## 2. Course information

|                      |  |               |          |                      |             |                  |          |                     |          |
|----------------------|--|---------------|----------|----------------------|-------------|------------------|----------|---------------------|----------|
| 2.1. Name            | <b>Distributed and Parallel Systems Security</b> |               |          |                      |             |                  |          |                     |          |
| 2.2. Code            | <b>16.0241IF1.2-0002</b>                         |               |          |                      |             |                  |          |                     |          |
| 2.3. Year of studies | <b>1</b>   | 2.4. Semester | <b>2</b> | 2.5. Assessment type | <b>Exam</b> | 2.6. Course type | <b>O</b> | 2.7. Number of ECTS | <b>4</b> |
| 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 | Secure Applications Programming, Security Standards and Protocols, Computer Network Security |
| 4.2. About skills     | Java & C/C++ 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                                 |
|  | CT2 | Planning and organization of human resources within a team or organization, in terms of awareness of the responsibility for professional results |

### 7. Course objectives

|                          |  |
|--------------------------|--|
| 7.1. General objective   | Defining and digesting the main concepts of distributed applications and systems. Ensuring the ability of developing and implementing secured distributed systems. |
| 7.2. Specific objectives | Transfer tehnologic pentru:<br>-RPC<br>-algoritmi paraleli si distribuiti<br>-securitatea in medii distribuite   |

### 8. Course contents

| 8.1. S(S) |  | Teaching methods | Advices |
|-----------|--|------------------|---------|
| 1         | 1. Network communication models.   |                  |         |
| 2         | 2. Distributed systems and algorithms.   |                  |         |
| 3         | 3. Distributed programming.  |                  |         |
| 4         | 4. Remote procedure call.  |                  |         |
| 5         | 5. Secured middleware technologies.  |                  |         |
| 6         | 6. Implementation of new and existing protocols for distributed systems.                                       |                  |         |
| 7         | 7. Development of distributed systems that guarantee the data confidentiality within the business environment. |                  |         |
| 8         | 8. Communication security.   |                  |         |
| 9         | 9. Group security in distributed systems.  |                  |         |
| 10        | 10. Development of secured distributed services.   |                  |         |

***Bibliography***

- Victor Valeriu Patriciu, Monica Ene Pietroseanu, Ion Bica, C. Cristea, Securitatea informatica in UNIX si INTERNET, Tehnica, 1998
- Victor Valeriu Patriciu, Monica Ene Pietroseanu, Ion Bica, N. Voicu, C. Vaduva, Securitatea comertului electronic, All, 2001
- Florian Mircea Boian, Programare distribuită, Albastra, 1999

| 8.2. C(C) |   | Teaching methods | Advices |
|-----------|---|------------------|---------|
| 1         | Network communication models.   |                  |         |
| 2         | Distributed systems and algorithms.   |                  |         |
| 3         | Distributed programming.  |                  |         |
| 4         | Remote procedure call.  |                  |         |
| 5         | Secured middleware technologies.  |                  |         |
| 6         | Implementation of new and existing protocols for distributed systems.                                       |                  |         |
| 7         | Development of distributed systems that guarantee the data confidentiality within the business environment. |                  |         |
| 8         | Communication security.   |                  |         |
| 9         | Group security in distributed systems.  |                  |         |
| 10        | Development of secured distributed services.  |                  |         |

***Bibliography***

- Victor Valeriu Patriciu, Monica Ene Pietroseanu, Ion Bica, C. Cristea, Securitatea informatica in UNIX si INTERNET, Tehnica, 1998
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- Florian Mircea Boian, Programare distribuită, Albastra, 1999
- Bruce Schneier, Applied Cryptography, John Wiley & Sons, 1996
- William Stallings, Cryptography and Network Security, Prentice Hall, 1999
- Andrew S. Tanenbaum, Computer Networks – 4/E, Prentice Hall Publishing House, 2003

**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: RPC protocol and secure methods for communications protocols within distributed platforms.<br>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,