**COURSE SYLLABUS**

***Specialization Practice***

**1. Program identification details**

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| --- | --- |
| 1.1 Higher education institution | „Ovidius” University of Constanta |
| 1.2 Faculty | Faculty Mathematics and Informatics |
| 1.3 Department | Mathematics and Informatics |
| 1.4 Field of studies | **Informatics** |
| 1.5 Cycle of studies (degree) | Master |
| 1.6 Degree program/qualification | **Cyber Security and Machine Learning** |
| 1.7 Academic year | 2022-2023 |

**2. Course identification details**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| 2.1 Course title | | | Specialization Practice | | | | |
| 2.2 Course code | | | FMI.CSML.I.1.04 | | | | |
| 2.3 Instructor | | | Conf. dr. Elena Bautu | | | | |
| 2.4 Teaching assistant | | |  | | | | |
| 2.5 Year | I | 2.6 Semester | 1 | 2.7. Evaluation type | C | 2.8 Course type \*/\*\* | DSI/DI |

*\* DF – fundamental course, DD – field course, DS – specialty course, DC – complementary course, DAP – advanced study course, DSI – synthesis course, DCA – advanced knowledge course.*

*\*\* DI – mandatory course; DO – optional course.*

**3. Estimated workload (hours per semester)**

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| --- | --- | --- | --- | --- | --- | --- |
| 3.1 Number of teaching hours/week | | 2 | of which:  3.2 course | - | 3.3 applications*\*\*\*L* | 2 |
| 3.4 Total of teaching hours within the program/semester | | 28 | of which:  3.5 lecture | - | 3.6 seminar | 28 |
| **3.7 Student workload for individual study** | | | | | | 22 |
| ***Distribution of workload*** | | | | | | [hours] |
| Individual study of texbooks, handbooks/reader, bibliography and notes | | | | | | 0 |
| Additional research (library, electronic resources, fieldwork) | | | | | | 8 |
| Homework (preparing seminar presentations, portfolios, critical essays, research papers, etc.) | | | | | | 8 |
| Individual consultations (optional) | | | | | | 0 |
| Evaluations / exams | | | | | | 6 |
| Other activities | | | | | | 0 |
| **3.8 Total hours per semester** | *22+28=50* | |  |  |  |  |
| **3.9 Number of credits** | 2 | |  |  |  |  |

*\*\*\* S - seminar; L - laboratory; P - project*

**4. Prerequisites (if any)**

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| --- | --- |
| 4.1 Curriculum-related |  |
| 4.2 Skills-related |  |

**5. Requirements (if any)**

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| 5.1. For running the course |  |
| 5.2. For running the seminar / laboratory /project  *\*The type is to be chosen according to the discipline* | Laboratory room available with computers Online tools such aș Microsoft Teams/Webex |

**6. Acquired specific skills**

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| --- | --- |
| Professional skills | Software development, modeling of various aspects of the software development process of a software application containing at least one module that:  - To manage persistent data in a secure and robust manner,  - To use methodologies and development environments for software applications,  - To apply the principles of object-oriented programming for the development of software projects |
| Cross-cutting skills | Execution of complex professional tasks, in conditions of autonomy and professional independence, involving the detection and solution of related problems in the development of a software application.  Efficient development of activities organized in an interdisciplinary group and development of empathic capacities for interpersonal communication, relationships and collaboration with various groups. |

**7. Course goal and objectives**

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| --- | --- |
| 7.1 The general objective of the course | Mastering the basic knowledge related to the software development process  Gaining abilities related to working în teams for the development of a software product |
| 7.2 Specific objectives | Elaboration of the models necessary for the development process.  Knowledge of methods used in the development process.  Develop software applications in teamwork |

**8. Contents**

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| **8.1 Lecture** | **Teaching methods** | **Number of hours** |
|  |  |  |
| **Bibliography:** | | |

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| --- | --- | --- |
| **8.2 Applications\* (laboratory)**  *\*The type is to be chosen according to the discipline* | **Teaching methods** | **Number of hours** |
| 1.Statement of the problem addressed by the project. Analysis of the software requirements. | Dialogue  Problem  Conversation  Questioning Discovery  Independent and cooperative learning  Team debate  Evaluation | 2 |
| 2.Scientific investigation related to the methods and models used.  Database analysis with the identification of the entities and relations involved. | 4 |
| 3.Project design: building data models, design the software architecture of the system (system class design, etc.) | 4 |
| 4.Software system implementation | 10 |
| 5.Software system testing | 4 |
| 6. Writing documentation | 4 |
| **Bibliography:**   1. Popovici D. M. (coordonator), Bogdan C. M., Rusu A., Chelai O., Nicola A., „Dezvoltarea aplicatiilor software” capitol in volumul „Medii virtuale multimodale distribuite”, Editura Universitaria Craiova şi Editura Prouniversitaria Bucuresti, 978-606-26-0049-5, 2014, vol 1, 354 pag. 2. Popovici D. M. (coordonator), Zaharescu E., Rusu A., Puchianu C. M., Sburlan D., „Web semantic şi ontologii” capitol în volumul „Medii virtuale multimodale distribuite”, Editura Universitaria Craiova şi Editura Prouniversitaria Bucuresti, 978-606-26-0280-2, 2015, vol 3, 266 pag. 3. R. Pressman, Software engineering, A Practitioner’s Approach, McGrow Hill, 2010 4. Ian Sommerville, Software Engineering, Addison-Wesley, 2011, http://www.pearsonhighered.com/sommerville/ | | |

**9. Correlation between the content of the course and the needs/expectations of the epistemic community, professional associations and/or significant employers relevant for the program**

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| Preparing graduates for a profession in software development and cyber security. |

**10. Evaluation**

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| --- | --- | --- | --- |
| Type of activity | 10.1 Evaluation criteria | 10.2 Evaluation methods | 10.3 Percentage of final grade |
| 10.4 Course | -- | -- | - |
| 10.5 Applications\*  (Seminar/Laboratory / Project)  *\*The type is to be chosen according to the discipline* | Active participation in teaching activities  Achieving and presenting milestones set for the project | Oral | 10%  10% |
|  | Project evaluation | Oral | 80% |
|  | | | |
| 10.6 Minimum standard of achievement for the acquisition of the ECTS credits: grade 5/10. | | | |
| Database design. UML modeling in the software requirements analysis phase. Basic implementation în an object oriented programming language. | | | |

Date of completion Course Instructor, 20.09.2022 Conf. univ. dr. Elena Bautu

Date of approval in the Department Head of Department

27.09.2022 Conf.Dr. PUCHIANU Crenguta

Dean,

Conf. Dr. NICOLA Aurelian