

## SYLLABUS

### 1. Information regarding the programme

|                                     |                                         |
|-------------------------------------|-----------------------------------------|
| 1.1 Higher education institution    | <b>Babeş-Bolyai University</b>          |
| 1.2 Faculty                         | <b>Mathematics and Computer Science</b> |
| 1.3 Department                      | <b>Computer Science</b>                 |
| 1.4 Field of study                  | <b>Computer Science</b>                 |
| 1.5 Study cycle                     | <b>Master</b>                           |
| 1.6 Study programme / Qualification | <b>Cyber Security</b>                   |

### 2. Information regarding the discipline

|                                         |   |              |                                                                        |                            |   |                           |            |
|-----------------------------------------|---|--------------|------------------------------------------------------------------------|----------------------------|---|---------------------------|------------|
| 2.1 Name of the discipline (en)<br>(ro) |   |              | Thematic Project with Innovation Challenge<br>Proiect tematic inovativ |                            |   |                           |            |
| 2.2 Course coordinator                  |   |              | Lector univ. dr. Alexandru Roja                                        |                            |   |                           |            |
| 2.3 Seminar coordinator                 |   |              | Lector univ. dr. Alexandru Roja                                        |                            |   |                           |            |
| 2.4. Year of study                      | 1 | 2.5 Semester | 2                                                                      | 2.6. Type of<br>evaluation | C | 2.7 Type of<br>discipline | Compulsory |
| 2.8 Code of the<br>discipline           |   | MME8205      |                                                                        |                            |   |                           |            |

### 3. Total estimated time (hours/semester of didactic activities)

|                                                                                       |     |                      |   |                        |       |
|---------------------------------------------------------------------------------------|-----|----------------------|---|------------------------|-------|
| 3.1 Hours per week                                                                    | 3   | Of which: 3.2 course | 0 | 3.3 seminar/laboratory | 3     |
| 3.4 Total hours in the curriculum                                                     | 42  | Of which: 3.5 course | 0 | 3.6 seminar/laboratory | 42    |
| Time allotment:                                                                       |     |                      |   |                        | hours |
| Learning using manual, course support, bibliography, course notes                     |     |                      |   |                        | 10    |
| Additional documentation (in libraries, on electronic platforms, field documentation) |     |                      |   |                        | 10    |
| Preparation for seminars/labs, homework, papers, portfolios and essays                |     |                      |   |                        | 23    |
| Tutorship                                                                             |     |                      |   |                        | 15    |
| Evaluations                                                                           |     |                      |   |                        | -     |
| Other activities: .....                                                               |     |                      |   |                        | -     |
| 3.7 Total individual study hours                                                      | 58  |                      |   |                        |       |
| 3.8 Total hours per semester                                                          | 100 |                      |   |                        |       |
| 3.9 Number of ECTS credits                                                            | 4   |                      |   |                        |       |

### 4. Prerequisites (if necessary)

|                 |                                                                                                                            |
|-----------------|----------------------------------------------------------------------------------------------------------------------------|
| 4.1. curriculum | <ul style="list-style-type: none"> <li>• Computer science research methodology</li> <li>• Innovation management</li> </ul> |
|-----------------|----------------------------------------------------------------------------------------------------------------------------|

|                   |                                                                                                                                                                                                                       |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.2. competencies | <ul style="list-style-type: none"> <li>• Knowledge in the field of Information technology.</li> <li>• Knowledge in the field of management and entrepreneurship.</li> <li>• Creative and critical thinking</li> </ul> |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 5. Conditions (if necessary)

|                                      |                                                                                                                                                                                                                                                                            |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.1. for the course                  | <ul style="list-style-type: none"> <li>• Classroom with video-projector and internet connection.</li> </ul>                                                                                                                                                                |
| 5.2. for the seminar /lab activities | <ul style="list-style-type: none"> <li>• Room with video-projector, collaborative activities spaces for creation and co-creation. Resources and instruments for creative and innovative activities. Online resources and spaces for creation and collaboration.</li> </ul> |

## 6. Specific competencies acquired

|                           |                                                                                                                                                                                                                                                                      |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Professional competencies | <ul style="list-style-type: none"> <li>• Analysis and formalization of complex problems</li> <li>• Use of cybersecurity knowledge in problems solving.</li> <li>• Analysis, design, and implementation of software systems in the field of cybersecurity.</li> </ul> |
| Transversal competencies  | <ul style="list-style-type: none"> <li>• Professional communication skills; concise and precise description, both oral and written, of professional results.</li> </ul>                                                                                              |

## 7. Objectives of the discipline (outcome of the acquired competencies)

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.1 General objective of the discipline  | <ul style="list-style-type: none"> <li>• Understanding specific needs and problems</li> <li>• Development of innovative Proof of Concepts or MVPs</li> </ul>                                                                                                                                                                                                                                                                          |
| 7.2 Specific objective of the discipline | <ul style="list-style-type: none"> <li>• Understanding specific needs and problems.</li> <li>• Product and / or service innovation</li> <li>• Understand how to translate problems and challenges into innovative products frameworks</li> <li>• Understanding the markets and opportunities</li> <li>• Development of Proof of Concept / MVP roadmaps</li> <li>• Development of scientific and experimental documentation</li> </ul> |

## 8. Content

|                                    |                                                                        |         |
|------------------------------------|------------------------------------------------------------------------|---------|
| 8.1 Course                         | Teaching methods                                                       | Remarks |
| 8.2 Seminar / laboratory           |                                                                        |         |
| 1. Product vision                  | Lecture, heuristic conversation, problematization, debates, case study | 3 hours |
| 2. Product strategy and objectives | Lecture, heuristic conversation,                                       | 3 hours |

|                                     |                                                                        |         |
|-------------------------------------|------------------------------------------------------------------------|---------|
|                                     | problematization, debates, case study                                  |         |
| 3. Product roadmap                  | Lecture, heuristic conversation, problematization, debates, case study | 3 hours |
| 4. Problem research                 | Lecture, heuristic conversation, problematization, debates, case study | 3 hours |
| 5. Solution creation and validation | Lecture, heuristic conversation, problematization, debates, case study | 3 hours |
| 6. Product growth strategies        | Lecture, heuristic conversation, problematization, debates, case study | 3 hours |
| 7. Product metrics                  | Lecture, heuristic conversation, problematization, debates, case study | 3 hours |
| Bibliografie                        |                                                                        |         |

**9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program**

- The course respects the IEEE and ACM Curricula Recommendations for Computer Science studie;
- The course exists at the major universities in Romania offering similar study program;
- Graduating a master program assumes experience in developing a research project.

**10. Evaluation**

| Type of activity                   | 10.1 Evaluation criteria | 10.2 Evaluation methods                                       | 10.3 Share in the grade (%) |
|------------------------------------|--------------------------|---------------------------------------------------------------|-----------------------------|
| 10.4 Course                        |                          |                                                               |                             |
| 10.5 Seminar/lab activities        | Project evaluation.      | The project is evaluated based on complexity and originality. | 100%                        |
| 10.6 Minimum performance standards |                          |                                                               |                             |
| At least grade 5 (from 1 to 10).   |                          |                                                               |                             |

Date

**22.04.2024**

Signature of course coordinator

Lector univ. dr. Alexandru Roja

Signature of seminar coordinator

Lector univ. dr. Alexandru Roja

Date of approval

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Signature of the head of department

Conf. univ. dr. Adrian Sterca