

Syllabus of the subject Autonomous Systems (aAUTS)

Form: full-time

Academic year:
2018/2019

Subject instructors

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Guarantors:

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Subject content and objectives:

The subject is focused on the analysis and design of the multi-agent systems. Students prepare the analysis of particular application domain. Design of these systems is realised with the semi-formal language called AML (Agent Modelling Language) in the StarUML tool. The main aim of the subject is to introduce the approaches of information/knowledge modelling and the principles of multi-agent-based systems.

Preconditions:

aUOMO is recommended, i. e. knowledge of object-oriented principles is inevitable for the aAUTS.

Acquired skills and knowledge:

Students will be able to develop the mind map in the CmapTools. They will be able to work with the StarUML CASE tool and design the multi-agent-based system with the AML in the StarUML.

Rules for attendance:

Attendance on lectures and seminars is not compulsory, but it is highly recommended.

Requirements for credits:

To receive 60 points at least from the total of 100 points.

Total amount of points consists of the evaluation of the project (max. 100 points for the project):

- the project: state-of-the-art preparation (max. 30 points), analysis and design of the multi-agent system (max. 60 points), presentation of the project (max. 10 points)

Note 1: The project is not possible to revise. Only one submission of the project is possible.

Note 2: The presentation of the project has to be done otherwise the credits cannot be assigned.

Form of the exam:

The subject is concluded by the written exam.

Final evaluation of the subject:

Credits are awarded on the basis of the fulfilment of conditions that are mentioned above. For the exam, the student have to receive:

- 90 - 99+: A (1)
- 80 - 89: B (1 - 2)
- 70 - 79: C (2)
- 60 - 69: D (2 - 3)
- 50 - 59: E (3)
- 0 - 49: F (4, 5)

In case of receiving lower points (< 50), the student is not successful. In case of the small point difference, the teacher can consider to the amount of points received during the seminar and the whole activity of the student during seminars/lectures.

Subject content (lectures):

1. Introduction into the subject, requirements
2. Introduction into the agents and multi-agent systems
3. Knowledge representation – introduction into the concept maps, mind maps, ontologies
4. Knowledge-based technologies and management
5. Intelligent agents, architectures, interactions and PEAS
6. Object-oriented modelling and UML
7. AML – part 01
8. AML – part 02
9. Expert systems
10. Applications

Subject content (seminars):

1. Introduction into the subject and multi-agent systems
2. Literature research (citation, annotation, abstract)
3. Mind/concept mapping for the state of the art preparation
4. PEAS and ODD + D
5. Working on projects
6. UML and StarUML
7. StarUML – AML – part 1
8. StarUML – AML – part 2
9. Working on own project and consultations
10. Working on own project and consultations
11. Working on own project and consultations

Subject assessment:

Subject is assessed by a signature. The signature is gained for one project and one written exam.

References:

- Awad E. M. & Ghaziri: H. M: Knowledge Management, Prentice Hall - Pearson Education, 2004
- Russell, S.; Norvig, P.: Artificial Intelligence: A Modern Approach (3rd Ed.). Prentice Hall, 2009
- Horling, B.; Lesser, V.: A Survey of Multi-Agent Organizational Paradigms. The Knowledge Engineering Review, 19(04), 281 - 316
- Cervenka, R.; Trencansky, I.: The Agent Modeling Language - AML: A Comprehensive Approach to Modeling Multi-Agent Systems, Springer, 2007