

Logic Programming (C003783)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size (nominal values; actual values may depend on programme)
Credits 6.0 Study time 180 h Contact hrs 60.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 2)	Dutch	Gent	teaching method	hours
			seminar: practical PC room classes	30.0 h
			lecture	30.0 h
			online lecture	0.0 h
			online seminar	0.0 h

Lecturers in academic year 2020-2021

Scholliers, Christophe

WE02 lecturer-in-charge

Offered in the following programmes in 2020-2021

[Bachelor of Science in Computer Science](#)

crdts	offering
6	A

Teaching languages

Dutch

Keywords

Programming languages, Logic programming, Backtracking, Unification, Prolog

Position of the course

The student immerses himself in logical programming paradigms.

It is intended that she / he:

- masters the practical use of a logical programming language;
- masters the concepts, programming techniques and data structures that are common in this paradigm;
- acquires insight into the connections between logic programming, functional programming and object-oriented programming
- gains insight into the underlying evaluation mechanisms of this language

Contents

- taal: SWI Prolog, notions of other logic programming languages
- execution mechanisms: unificatie, backtracking, lazy evaluation
- data structures: graphs, cyclic data structures
- meta interpreters
- forward vs backward chaining
- programming with constraints
- Natural deduction and semantics of predicate logic

(Not all topics will be covered every year)

Initial competences

Being able to program in a functional programming language like Haskell.

Final competences

- 1 The student understands the syntax and semantics of first-order logic.
- 2 He/she recognizes which logical problems can be tackled with propositional or predicational logic and which can't.
- 3 The student can write small to mid sized programs in a logical programming language.
- 4 The student understands the datastructures of the language and can apply them in a project.
- 5 He/she can apply tools for automated reasoning.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, seminar: practical PC room classes, online lecture, online seminar

Extra information on the teaching methods

Theory: Lectures, Exercises: Lectures with discussion, Seminar: coached exercises on PC.

Due to COVID19 alternative work forms might be applied.

Learning materials and price

Clocksinn, William F., and Christopher S. Mellish. *Programming in PROLOG*. Springer Science & Business Media, 2003. (estimated cost 65 euro)

Sterling, Leon, and Ehud Y. Shapiro. *The art of Prolog: advanced programming techniques*. MIT press, 1994.

References

Course content-related study coaching

The theory is explained in detail during the lectures. Additional explanations can be obtained when necessary. The seminars and practical exercise sessions are aimed at enhancing the understanding of the theoretical principles. An electronic learning environment supports the communication between students and teachers. Feedback after the project work allows monitoring of the individual study progress for the course. Lecturer and assistant are available for the student who have questions about the theory or the exercises.

Evaluation methods

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Written examination

Examination methods in case of periodic evaluation during the second examination period

Written examination

Examination methods in case of permanent evaluation

Assignment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

The students are evaluated on a project assignment. Furthermore there is theory-exam which verifies whether the student masters the treated course materials.

Calculation of the examination mark

1st exam: periodic (50%) and permanent (50%) evaluation.

When a student obtains a grade less than 10/20 for either the theory or the project, the total end grade will be maximally the highest failing grade 9/20.