

Advanced Polymer Chemistry (C002965)

Course size *(nominal values; actual values may depend on programme)*

Credits 3.0 **Study time 75 h**

Course offerings and teaching methods in academic year 2024-2025

A (semester 1)	English	Gent	lecture
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Lecturers in academic year 2024-2025

Du Prez, Filip	WE07	lecturer-in-charge
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Offered in the following programmes in 2024-2025

	crdts	offering
Master of Science in Chemical Engineering	3	A
Master of Science in Chemical Engineering	3	A
Master of Science in Chemical Engineering Technology	3	A
Master of Science in Materials Engineering	3	A
Master of Science in Sustainable Materials Engineering	3	A

Teaching languages

English

Keywords

Polymers, polymer chemistry, polymerisations

Position of the course

This course starts from the content of the bachelor course 'Introduction to Polymer Science'.

The student will get acquainted with the latest developments in the area of polymer chemistry, polymer modification methods and complex polymer architectures.

Contents

Living polymerizations; controlled radical polymerizations: ATRP, NMP and RAFT; dendrimers and hyperbranched polymers; copolymers (random, block and graft); (bio)degradation of polymers; most efficient chemical transformations of synthetic and natural polymers (eg. 'click' chemistry); polymers from renewable resources; determination absolute molecular weights; self-healing polymer materials; polymeric capsules; recent developments in polymer chemistry.

Initial competences

Followed with success the course 'introduction to polymer science' or getting acquainted with the competences that were aimed for in this course.

Final competences

- 1 Having critical insight in the different methods to prepare polymers.
- 2 Being able to discuss relationships between different polymerisation methods.
- 3 Knowing of parameters that control the polymerisation reactions.
- 4 Getting acquainted with methods to build up complex polymer architectures.
- 5 Being open for new scientific developments within the rapidly developing area of polymer chemistry.

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

Study material

None

References

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Course content-related study coaching

Interactive guidance via Ufora

Assessment moments

end-of-term assessment

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

Written assessment

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

Written assessment

Examination methods in case of permanent assessment**Possibilities of retake in case of permanent assessment**

not applicable

Calculation of the examination mark

The evaluation counts for 100%.