

## 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

**Lecturers in academic year 2024-2025**

Du Prez, Filip

WE07

lecturer-in-charge

**Offered in the following programmes in 2024-2025**

[Master of Science in Chemical Engineering](#)

**crdts**

3

**offering**

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%.