GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2018-2019

Organic Chemistry I (E721021)

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

Credits	6.0	Study time	180 h	Contact hrs	66.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 1)	Dutch	seminar: coached exercises	10.0 h
		lecture	36.0 h
		practicum	20.0 h

Lecturers in academic year 2018-2019

Verberckmoes, An	TW11	lecturer-in-charge
Diricks, Greta	TW11	co-lecturer

Offered in the following programmes in 2018-2019	crdts	offering
Bachelor of Science in Engineering Technology (main subject Chemical Engineering Technology)	6	A
Bachelor of Science in Chemical Engineering Technology	6	A
Preparatory Course Master of Science in Chemical Engineering Technology	6	A

Teaching languages

Dutch

Keywords

Organic chemistry: nomenclature, properties, bonding and isomerism, alkanes and cycloalkanes, alkenes and alkynes, aromatic compounds, stereoisomerism, organic halogen compounds, alcohols, phenols and thiols, reactions and reaction mechanisms, substitution and elimination reactions

Position of the course

Study of the nomenclature, structure, building (bonding, stereoisomerism) and properties of the important classes of organic compounds.
Study of the reaction mechanisms that occur during the synthesis of and conversions between organic compounds.

Contents

Bonding and isomerism: ionic compounds and the covalent bond; structural formulae and hybrid orbitals, valence, isomerism.
Alkanes and cycloalkanes; conformational and geometrical isomerism: structure of alkanes and nomenclature; properties; conformations; isomerism and reactions of (cyclo)alkanes.
Alkenes and alkynes: nomenclature and orbital model; addition and oxidation reactions of alkenes; reaction equilibria and reaction rate; reactions of alkynes.
Aromatic compounds: aromaticity; nomenclature; reactivity of aromatic compounds; ortho-, para- and meta directing groups.
Stereoisomerism: chirality and enantiomers; stereoisomerism and chemical reactions.
Organic halogen compounds; substitution and elimination reactions: S_N1 en S_N2 mechanism; elimination reactions.
Alcohols, phenols and thiols: nomenclature; properties and reactions

Initial competences

Final competences as envisaged in the course General Chemistry.

Final competences

1 Master general chemical knowledge and skills in organic chemistry.

2 Execute elementary chemical reaction mechanisms and chemical syntheses, and this in a responsible way with regard to the environment, safety and health in the laboratories
3 Think and reason in a critical, creative and scientific way.
4 Implement scientific-disciplinary insights on scientific problems, independently and in a team.
5 Communicate about and report on information, ideas, problems and solutions regarding organic chemistry in an adequate way both to specialists and non-specialists.

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, practicum, seminar: coached exercises

Learning materials and price

Syllabus (theory), laboratory manual and seminar exercises.

References

D.J. Hart, C.M. Hadad, L.E. Craine, H. Hart, Organic Chemistry A short course, 13th ed., Brooks/Cole, Belmont, 2012.

Course content-related study coaching

Additional explanation is provided by appointment.

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination with open questions

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

Written examination with open questions

Examination methods in case of permanent evaluation

Written examination with open questions, participation, assignment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

Extra information on the examination methods

Details on the exam in second examination period for the permanent evaluation:
Practicum: practical laboratory exercises: permanent evaluation, reports, test.
Attendance is compulsory; in case of non-attendance a medical certificate is required.
Practical work in laboratory: points are remained in the 2nd examination period.

Calculation of the examination mark

Periodic evaluation: 80% (lecture (55%) + seminar (25%))
Permanent evaluation: 20% (practicum)
The evaluation and implementation of the final quotation is being established through the mathematical average according to the assigned coefficients. In case however for one of the parts of the periodic evaluation, thus for the evaluation of the lectures or of the coached exercises, less than 7/20 is being obtained, there is a deviation from the calculated endscore when it is 10 or more and the student gets a final quotation of 9/20.