

Industrial Microbiology (I700154)

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

Credits	4.0	Study time	120 h	Contact hrs	36.0 h
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Course offerings and teaching methods in academic year 2018-2019

A (semester 2)	Dutch	lecture	24.0 h
		excursion	12.0 h

Lecturers in academic year 2018-2019

De Clippeleer, Jessika	LA25	lecturer-in-charge
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Offered in the following programmes in 2018-2019

	crdts	offering
Bachelor of Science in Bioscience Engineering Technology	4	A
Linking Course Master of Science in Biochemical Engineering Technology	4	A
Preparatory Course Master of Science in Biochemical Engineering Technology	4	A

Teaching languages

Dutch

Keywords

Industrial microbiology

Position of the course

Provide the students with the necessary microbiological knowledge and insight for the industrial microbial production of valuable metabolites, process control and quality control.

Contents

Industrially important micro-organisms: history, properties, identification, isolation, strain improvement.

Industrial cultivation of microorganisms: substrates, medium composition, medium sterilization, inoculum preparation and scaling, measurement microbial growth.

The production of various commercially useful metabolic products are discussed such as: amino acids, organic acids, vitamins, nucleic acids, extracellular polysaccharides, antibiotics and other pharmaceuticals.

Bioconversions involving selective biochemical/microbiological conversions. Metabolic regulation.

Industrial use of microorganisms in the food industry.

Microbiological control methods and importance of these methods.

The seminar consists of company visits and / or other practice related activities to support the learning content. Some companies are technologically vetted: fermentation industries and industries that produce yeast and antibiotics.

Initial competences

Credits obtained for biochemistry and microbiology. Engineering sciences and enzymology studied.

Final competences

1 The students obtained good insight in industrial microbiological processes.

2 The impact and importance of new microbiological processes can be estimated.

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

Excursion, lecture

Learning materials and price

Teacher's course, background information, scientific and technical literature.

References

Course content-related study coaching

Possibility to consult the teacher after the lecture/exercise or 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

Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

Extra information on the examination methods

Theory: written examination

Exercises: written evaluation

Calculation of the examination mark

Theory: 80%

Exercises: 20%

A weighted average is used to compute the final score for a training item. However, if a student gains a score of 8 or less on 20 on one of the different courses (parts of training items), he proves that his skill for certain sub-competences is insufficient.

Consequently, one can turn from the arithmetical calculation of the final assignment of quotas of a training item and the new marks are 9/20.