GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

Offshore Foundations (E044671)

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

Credits 4.0 **Study time 120 h**

Course offerings in academic year 2026-2027

A (semester 1)	English	Gent
B (semester 1)	English	Gent
C (semester 1)	Dutch	Gent

Lecturers in academic year 2026-2027

Stuyts, Bruno	TW15	lecturer-in-charge

Offered in the following programmes in 2026-2027	**crdts**	**offering**
Bridging Programme Master of Science in Engineering: Ships and Marine Technology	3	B
Master of Science in Electromechanical Engineering(main subject Maritime Engineering)	3	C
Master of Science in Civil Engineering	4	A
Master of Science in Engineering: Ships and Marine Technology	3	C
Master of Science in Engineering: Ships and Marine Technology	3	B

Teaching languages

English, Dutch

Keywords

Offshore, Foundations, Geotechnical aspects

Position of the course

The goal of the course is to allow students to gain insight in the geotechnical aspects of offshore designs and foundations and how to use geotechnics in the design of an offshore structure.

Contents

- Geotechnical aspects of offshore structures
- Offshore geotechnical and geophysical site characterisation
- Limit states for offshore foundations
- Geotechnical considerations for jack-up foundations
- Horizontally loaded piles
- Axially loaded piles
- Pile installation (driveability)
- Suction caissons
- Gravity foundations
- Soil behaviour under cyclic loading
- Offshore clay
- Cable and pipeline soil interaction
- Pipeline and cable protection
- Offshore-soil structure interaction (together with the course Offshore Structures)

Initial competences

Geotechnics, Hydraulics, Coastal Engineering and Harbour Construction, Groundwater and contaminant flow

Final competences

1 Knowledge of the various offshore foundation concepts and how to design these.
2 What soil mechanical investigation is needed and how parameters relevant for

offshore foundations are determined, some knowledge on the calculation standards.
3 The possibility to combine the knowledge in a project with analytical and numerical calculations.
4 Knowledge on the limitations of the available soil parameter correlations and design methods.

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

Group work, Seminar, Lecture

Extra information on the teaching methods

Ex cathedra teaching, seminar of a company: online exercises through Ufora, laboratory training

Study material

None

References

Slides Offshore Foundations (Stuyts)
Offshore Geotechnical Engineering (Randolph & Gourvenec)

Course content-related study coaching

The teaching staff is available to the students before and after the scheduled lectures. Specific feedback sessions are planned in which questions are answered in a plenary manner.

Assessment moments

end-of-term and continuous assessment

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

Oral assessment, Assignment

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

Oral assessment, Assignment

Examination methods in case of permanent assessment

Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

Periodic evaluation (during examination period): oral exam, written preparation.
Non-periodic evaluation (during semester): evaluation of reports on group work assignments. Frequency: 2 group work assignments (1 project, 1 laboratory assignment). Students submit the three reports before the start of the periodic evaluations, according to the terms announced during the lectures and via the electronic learning platform.
If the reports are not submitted on time or do not contain all the required content, without a valid and timely communicated reason for it, then the student will receive a 0 for the nonperiodical evaluation. For the non-periodic evaluation, a second chance is only possible in modified form, if less than 10 in 20 was achieved.

Calculation of the examination mark

- Evaluation lab report (15%)
- Evaluation group work report (25%)
- oral examination (60%)

If for one of both evaluations (periodic vs non-periodic evaluation) less than 10 (in 20) is scored, then this part is counted for 70% and the other part for 30%.