

Advanced SCUBA Skills for Scientific Diving (C004276)

Cursusomvang (nominale waarden; effectieve waarden kunnen verschillen per opleiding)

Studiepunten 3.0

Studietijd 84 u

Aanbodsessies in academiejaar 2026-2027

A (semester 1)

Engels

Gent

Lesgevers in academiejaar 2026-2027

Santos, Rui

FAR001

Verantwoordelijk lesgever

Padrão, Nuno

FAR001

Medelesgever

Paulo, Diogo

FAR001

Medelesgever

Aangeboden in onderstaande opleidingen in 2026-2027

[International Master of Science in Marine Biological Resources](#)

stptn

aanbodsessie

3

A

Onderwijstalen

Engels

Trefwoorden

SCUBA, scientific diving, transferable skills

Situering

This course is designed to train students in advanced SCUBA dive skills, such as stability, team work, problem solving and situational awareness, through well structured dive planning and strong academic knowledge on gas properties and hazards, gas strategies and management, decompression and adequate equipment use for scientific diving activities.

An international certification, according to norm NP EM 14153-02, may be awarded through an additional training module.

Inhoud

The class program will be focused on:

Theory component:

a) Physics and physiology:

- Gas laws
- Gas properties
- Gas Toxicity (O₂)
- Hypercapnia
- Gas poisoning (CO₂)
- Narcosis
- Use of Helium

b) Gas management

- Calculating appropriated gas supply and gas types for scientific research
- Calculating adequate gas reserves
- Dive gas and decompression gas
- Gas rule of half's and rule of thirds and its application in to scientific diving

c) Decompression theory

- Bulman algorithm versus VPM for decompression
- Dive computer, dive tables and software
- Minimum decompression profiles
- Emergency decompression
- The use of enriched gases for decompression acceleration

d) Scientific diving planning

- Teams

- Task assignments
- Situation awareness
- Risk assessment

e) Scientific Diving SCUBA equipment

Practical application:

- a) Underwater stability (buoyancy mastery, trim, balance)
- b) Propulsion methods adequate for silty and fragile environments (frog, flutter, modified frog, modified flutter, helicopter turn, backward)
- c) Basic manipulation and operation of regulators (including back up) and masks
- d) Underwater tank valve manipulation
- e) Use of safety buoys
- f) Team position and problem solving
- g) Managing out of gas situations
- h) Managing adequate ascend profiles, including minimum decompression while sharing gas to an out of gas diver.
- i) Underwater data acquisition on a pre-set monitoring site.

This class as an entry level prerequisite for students which is to have an Open Water Diver certificate.

If students successfully pass the class, an international certification is awarded.

Begincompetenties

This class has an entry level prerequisite for students which is to have an Open Water Diver certificate or equivalent.

Eindcompetenties

Students will be able to plan in a safe and efficient manner a dive to collect quantitative data from a pre-set underwater monitoring area.

Creditcontractvoorwaarde

Toelating tot dit opleidingsonderdeel via creditcontract is mogelijk na gunstige beoordeling van de competenties

Examencontractvoorwaarde

Dit opleidingsonderdeel kan niet via examencontract gevolgd worden

Didactische werkvormen

Hoorcollege

Toelichtingen bij de didactische werkvormen

- The methodology will be theory classes with power point. Theoretical exercises focusing advanced dive planning will be done with all students in an interactive manner.
- Out of the water practice of the future water skills.
- Underwater practice after teacher demonstration.
- Repetition until mastery is obtain.

Studiemateriaal

Geen

Referenties

Doing it Right: The Fundamentals of Better Diving, by Jarrod Jablonski (Global Underwater Explorers)

Scientific Diving Techniques: A Practical Guide for the Research Diver, by J.N. Heine, 225 pages, Best Publishing Company, ISBN 0-941-33269-1

Vakinhoudelijke studiebegeleiding

Individual coaching is foreseen for students having problems, and will be on a one to one basis.

Evaluatiemomenten

periodegebonden evaluatie

Evaluatievormen bij periodegebonden evaluatie in de eerste examenperiode

Schriftelijke evaluatie, Werkstuk

Evaluatievormen bij periodegebonden evaluatie in de tweede examenperiode

Schriftelijke evaluatie, Werkstuk

Evaluatievormen bij niet-periodegebonden evaluatie

Tweede examenkans in geval van niet-periodegebonden evaluatie

Examen in de tweede examenperiode is mogelijk

Toelichtingen bij de evaluatievormen

Students will be evaluated in terms of performance in the water, in the theory component with a written exam, and in the practical component with a report.

Eindscoreberekening

Students will be evaluated in the theory component with a written exam (20%); and in the practical component with a report (20%). Additionally, a scale from 1 to 4 will be used to evaluate student in water performance (60%) where:

- Unsafe (fail)
- Cannot complete the task (need to repeat)
- Complete the task well (pass)
- Excellent performance (pass)

Retakes are possible; dates for retakes will be arranged between the instructors and the students.