

# **THE BRITISH SUB AQUA CLUB**

## **TECHNICAL SKILL DEVELOPMENT COURSE**

### **SYLLABUS**

#### **EXPLORER MIXED GAS DIVER**

#### **AIM**

A BSAC Explorer Mixed Gas Diver is a diver who, when diving using the equipment specific to their qualification, is competent to:

- Conduct dives with a dive buddy, within the limitations of the lesser qualified, in conditions already encountered by both during their training or previous experience
- Conduct dives within BSAC Safe Diving guidelines
- Dive to a maximum depth limit of 60 metres
- Conduct such dives with a more experienced or more highly qualified diver to expand their experience of depth or other conditions, within the limits of their mixed gas certification, beyond that previously encountered. Such dives should be under the supervision of a Dive Manager who is ideally an experienced mixed gas diver
- Conduct dives breathing a gas mixture of oxygen percentage greater than or equal to 18 % and a helium percentage of up to 35 %, for example, 18/35. This mixture contains the maximum permitted percentage of helium gas component for an Explorer Mixed Gas Diver, within the prescribed practical tolerances based on the final mixed gas percentages
- Plan and conduct dives requiring mandatory decompression
- Rescue another mixed gas diver from depth
- Conduct dives where other divers, capable of providing assistance and rescue management skills, are available at the surface.

#### **Course Outline**

The sport mixed gas diver course consists of the following elements:

- Optional dry practical equipment review lesson
- Optional confined water lesson dependent on the level of deep dive experience and familiarity with the appropriate dive equipment to execute a 60 metre dive.
- A planning session to provide a detailed plan for the deep dive assessment
- An open water dive to a depth between 55 and 60 metres, dependant on student performance, with a total underwater duration of not less than 60 minutes and an individual lesson duration of not less than 45 minutes
- All practical training includes the achievement of specific performance standards at appropriate points throughout the lessons.

#### **ENTRY REQUIREMENTS**

In order to attend this course, students must comply with the following:

- Be a minimum of 18 years of age
- Hold a minimum diver grade of BSAC Sports Mixed Gas Diver or recognised equivalent
- Provide documented evidence of diving in the region of 30 to 50 metres in the past four weeks leading

up to the course.

It is recommended that the diver should attend the following Skill Development Courses if they are not already qualified as a BSAC Dive Leader or equivalent prior to course enrolment:

- Oxygen Administration
- Practical Rescue Management

## **Equipment Configuration**

For confined and open water training, the following student equipment configuration is assumed:

- Two primary cylinders, total capacity determined by the rule of thirds and personal RMV, suitable for diving to 60 metres
- Two stage cylinders of minimum capacity seven litres
- Access to an Alternate Supply (AS) demand valve, minimum hose length 1.5 metres
- Mask & fins
- Weight belt or integrated weights where necessary
- Two depth gauges and/or watch/timer and/or decompression computers
- Suitable mixed gas for the lesson
- A delayed surface marker buoy (preferably red) and reel
- An emergency (preferably yellow) delayed surface marker buoy and spare reel
- An additional surface detection aid (e.g. a folding flag)
- Spare mask
- Knife and line cutter
- Slate
- Tag marker for lazy shot/trapeze
- Two torches (primary & backup)
- Buoyancy - two independent rescue solutions
- Trim weights
- Protective clothing as appropriate.

## **INSTRUCTOR REQUIREMENTS**

BSAC Explorer Mixed Gas Diver training is required to be carried out by, or supervised by an approved BSAC Explorer Mixed Gas Instructor or higher.

Assistant Explorer Mixed Gas Diver Instructors are Sports Mixed Gas Instructors with the appropriate level of varied mixed gas diving experience of a minimum of 50 hours. They may carry out the instruction of Explorer Mixed Gas Divers under the supervision of an approved BSAC Explorer Mixed Gas Diver Instructor Trainer (or higher). The following levels of supervision apply:

- Dry practical under on-site supervision
- Confined and open water lessons under direct (i.e. in-water) supervision

The process and prerequisites to qualify as a BSAC Explorer Mixed Gas Diver Instructor or to act as an Assistant Explorer Mixed Gas Diver Instructor are defined in the relevant BSAC Explorer Mixed Gas Diver standards.

## **Instructor ratios**

**Dry practical lessons** - To ensure that the student can fully participate in the exercises and receives effective tuition, the lesson contents assume a ratio of six students per instructor.

For **practical lessons**, student/instructor ratios should comply with the following guidelines:

**Confined water lessons** - The confined water lesson notes assume the most likely scenario of the lesson being carried out in open water, where time constraints are typically not imposed.

In order that all students can receive effective tuition during this time, a maximum ratio of four students per instructor is assumed.

In less favourable circumstances, this ratio may need to be reduced appropriate to the water conditions and time available.

Where water conditions allow longer lessons, the above ratios may be increased to a ratio of a maximum of six students per instructor provided that:

- All students can receive effective tuition within the time available.
- Underwater visibility is a minimum of 5 metres.
- The instructor is of a minimum grade of BSAC Explorer Mixed Gas Diver Instructor.
- The instructor has the assistance of another diver, minimum qualification Dive Leader and Explorer Mixed Gas Diver or equivalent, to monitor the safety and control of students. This safety diver may not teach unless he/she meets the requirements for a BSAC Assistant Explorer Mixed Gas Diver Instructor.
- The lesson briefing includes clear directions as to the role of the assisting diver during skills instruction.

**Open water lessons** - Because of the nature of the exercises being taught, the lesson contents assume a ratio of two students for a single instructor or up to four students provided the instructor has the assistance of another diver, minimum qualification Dive Leader and Explorer Mixed Gas Diver or equivalent, to monitor the safety and control of students. This is to ensure that each student receives safe effective tuition.

## **FACILITIES**

Dry area for dive planning and optional dry practical equipment exercises. Optional confined water dive site (10 metres maximum) for skills development. Dive site with 60 metres maximum for the Explorer Mixed Gas Diver open water dive.

## **QUALIFICATION**

Course certification will be issued by BSAC HQ after the event.

---

# LESSON SYLLABUS

## Instructor briefing

## Dry Practical Lesson Equipment Preparation (optional)

## Open Water Lessons:

## Confined Water Skills (optional)

- **Pre-dive**
- **Briefing**
- **Kit configuration and kit up**
  - Waterside checks
  - Buddy checks
- **Descent phase**
  - Bubble and equipment check
  - Gas switch
- **Bottom phase**
  - Primary gas regulator switch.
  - Weighting, trim & buoyancy
  - Hovering in a horizontal position
  - Helicopter turns
  - One metre incremental ascent
  - Change to spare mask
  - Isolation and shut down procedures
  - Stage cylinder ditch and retrieve
  - Stage cylinder hand off
  - Out of gas response
- **Ascent phase**
  - DSMB deployment 2 metres above the seabed
  - Switch to travel gas
  - Switch to decompression gas
  - Simulated decompression stop
  - Out of travel or decompression gas response
- **Surface phase**
  - Hand up stages & exit
- **Post dive actions**

## **Open water Dive**

- **Dive planning**
  - Decompression dive with maximum of 45 minutes ascent time
  - Prepare run time slate
- **Pre-dive**
  - Equipment preparation
  - Waterside checks
  - Briefing
  - Pre-dive checks
  - Visualisation of the dive
  - Kit configuration and kit up
  - Buddy checks
- **Descent phase**
  - Bubble check
  - Switch from travel gas to primary dive gas
- **Bottom phase**
  - Weighting, trim & Buoyancy
  - Gas switches
  - Run time management
  - Gas monitoring and management
- **Ascent**
  - Run time management
  - Mode of ascent
  - Travel gas management
  - Decompression stops
- **Surface phase**
  - Hand up stages & exit
- **Post dive actions**

## **Open forum and course debrief**

## **Disperse**

## **NOTES**

1. Although this is either a one or two day course depending on lesson prerequisites, it is not necessary to run it over consecutive days. Students may gain the benefit of time to prepare their equipment and to practice their new mixed gas diving skills.
2. Instructors should base their teaching on the Explorer Mixed Gas Diver Instructor pack.
3. The students should be issued with the Explorer Mixed Gas Diver course pack.
4. Suitably qualified BSAC Instructors (or equivalent) who wish to gain the Explorer Mixed Gas Diver Instructor status should apply to BSAC Technical Chief Examiner via BSAC HQ.